

THE  
GREAT  
EXHIBITION



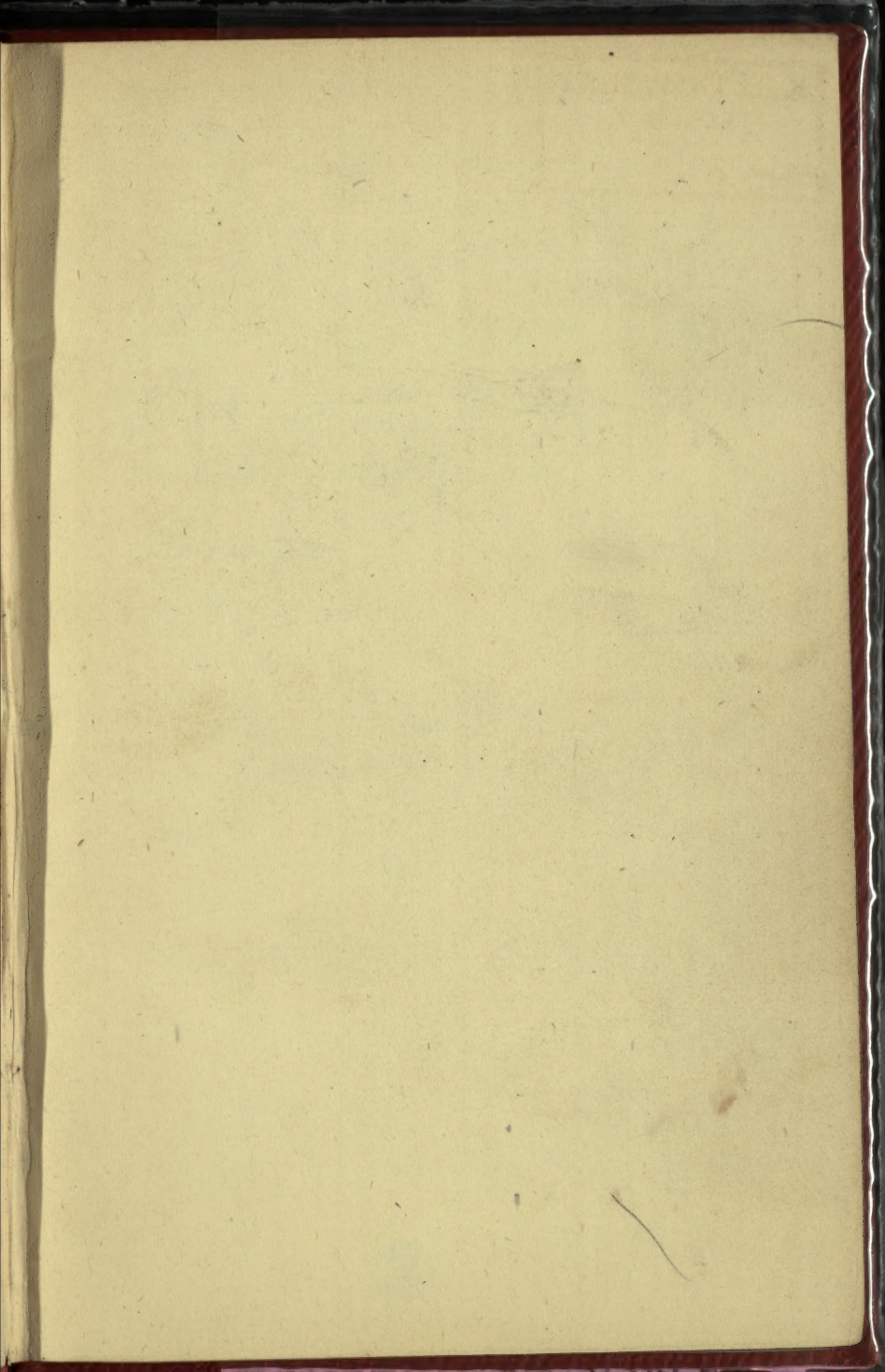
ILLUSTRATED

1851



K. B. DOWSLEY,  
TROY, N. Y.

No. 52

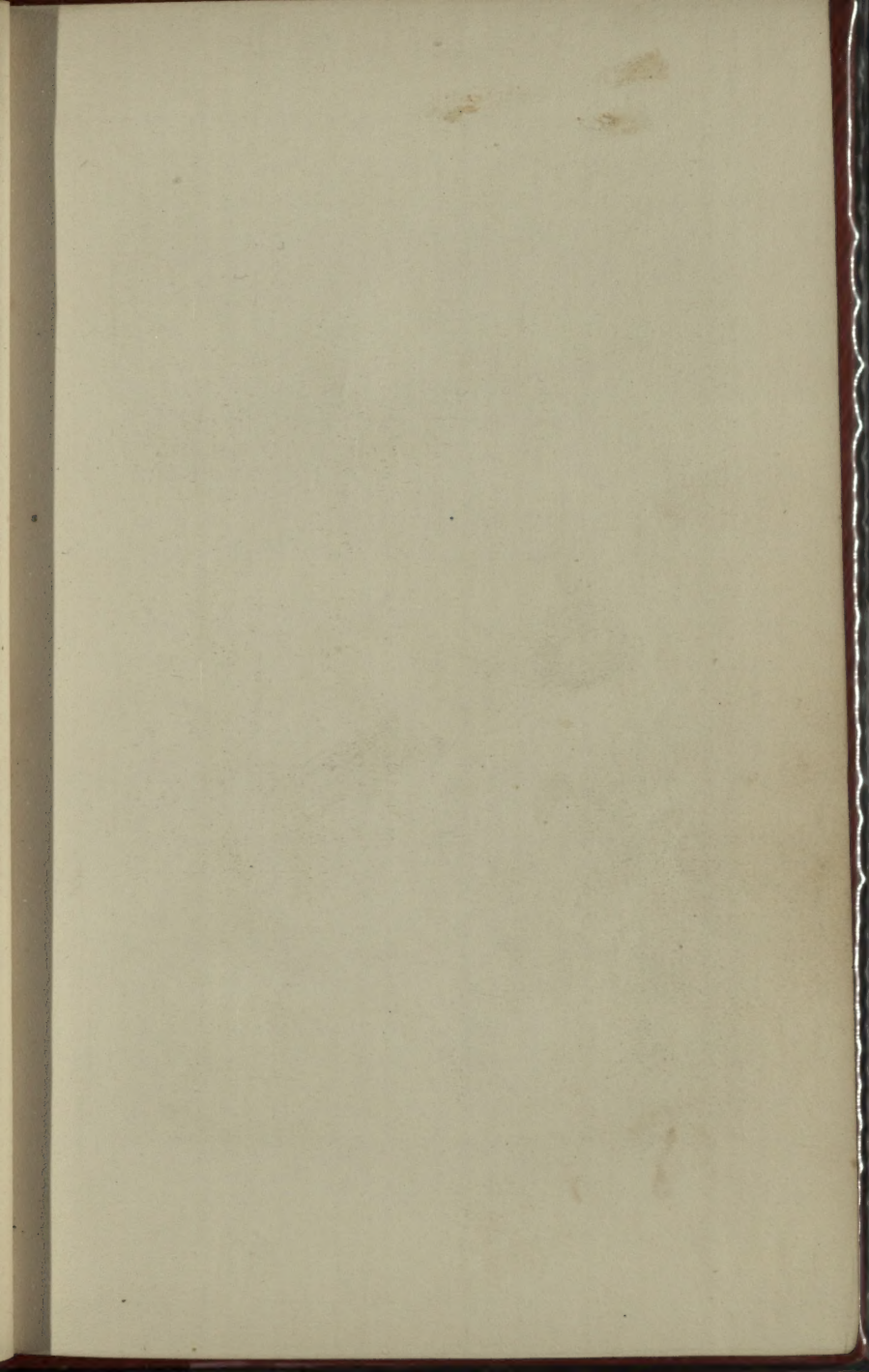






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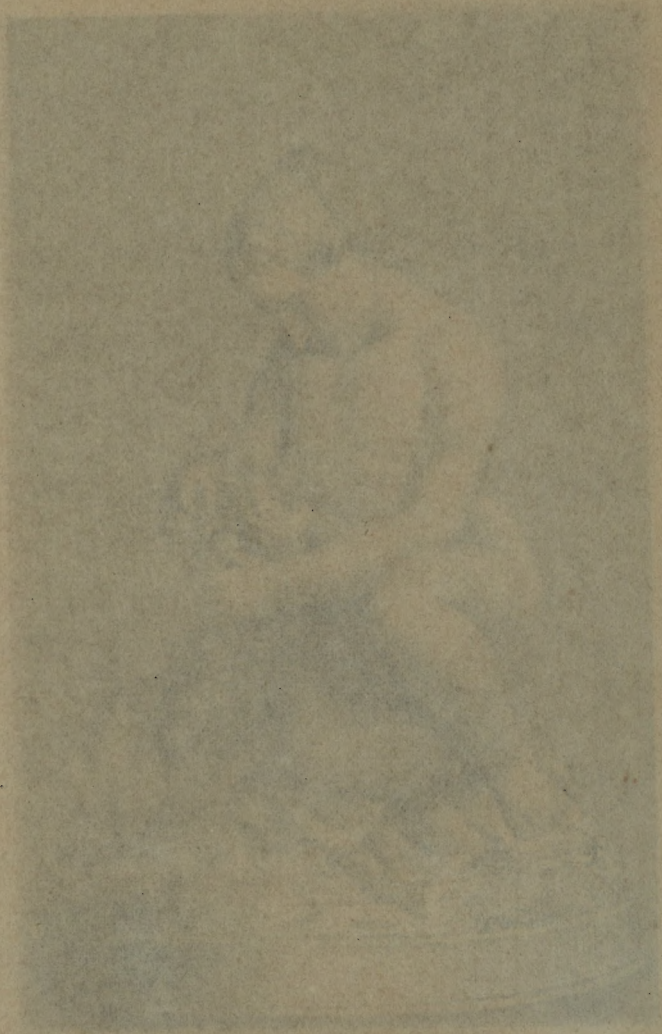




Engraved by Hollis from an Original Drawing by Tonninson.

FIDELITY.

M. BENZONI, ROME.



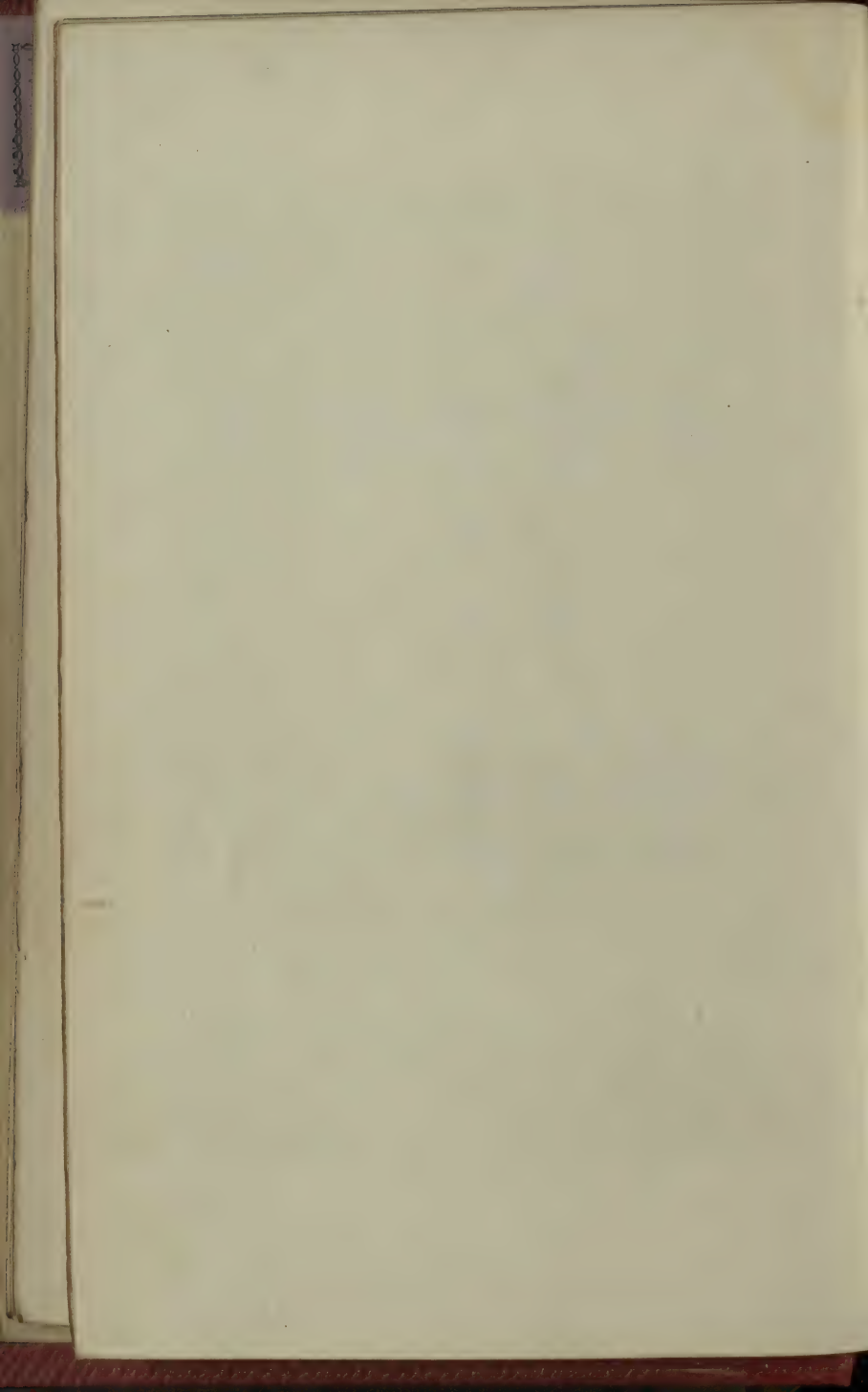


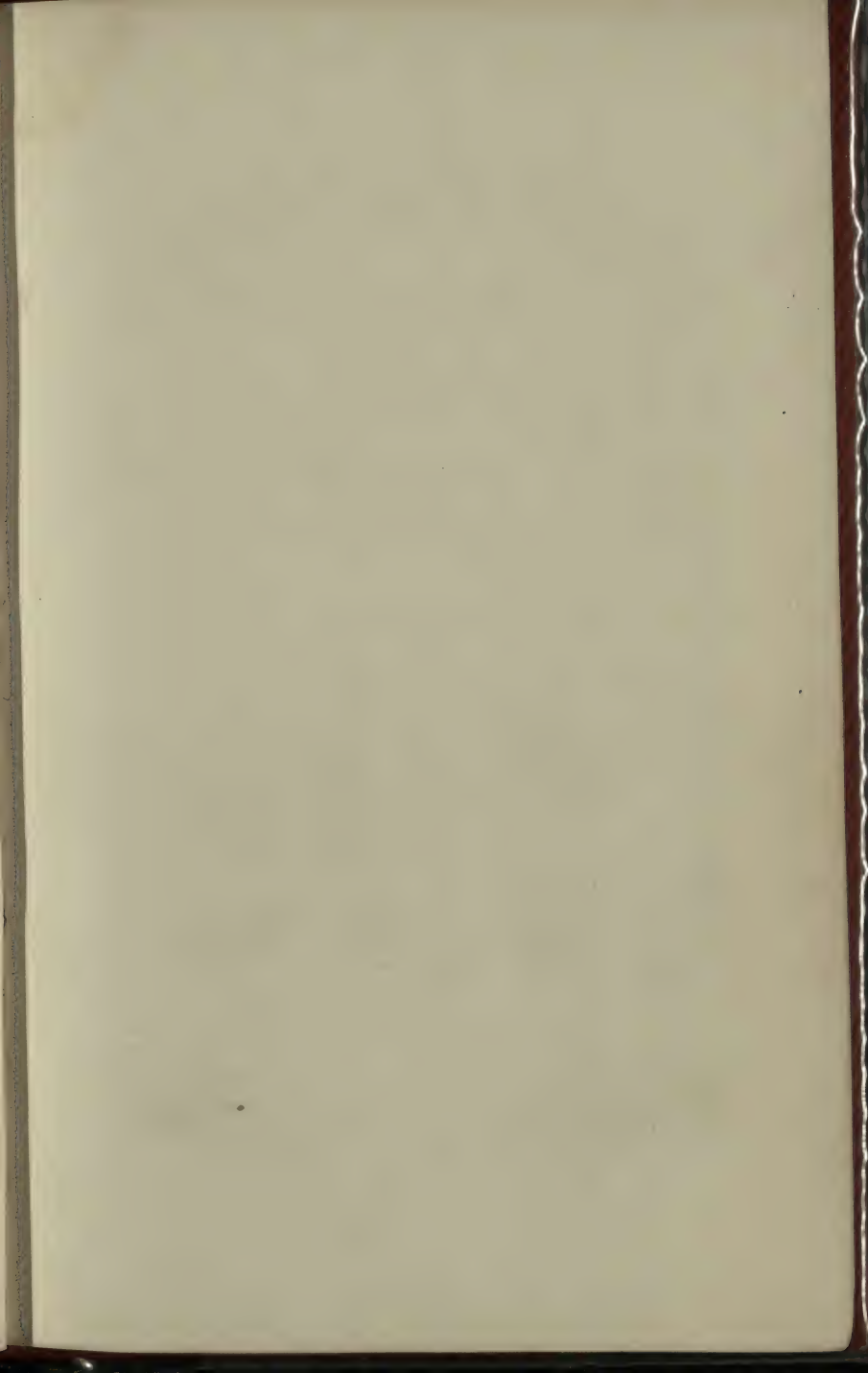


Engraved by Hollis from an Original Drawing by Tomlinson

G. R A T I T U D E .

M. BENZONI, ROME



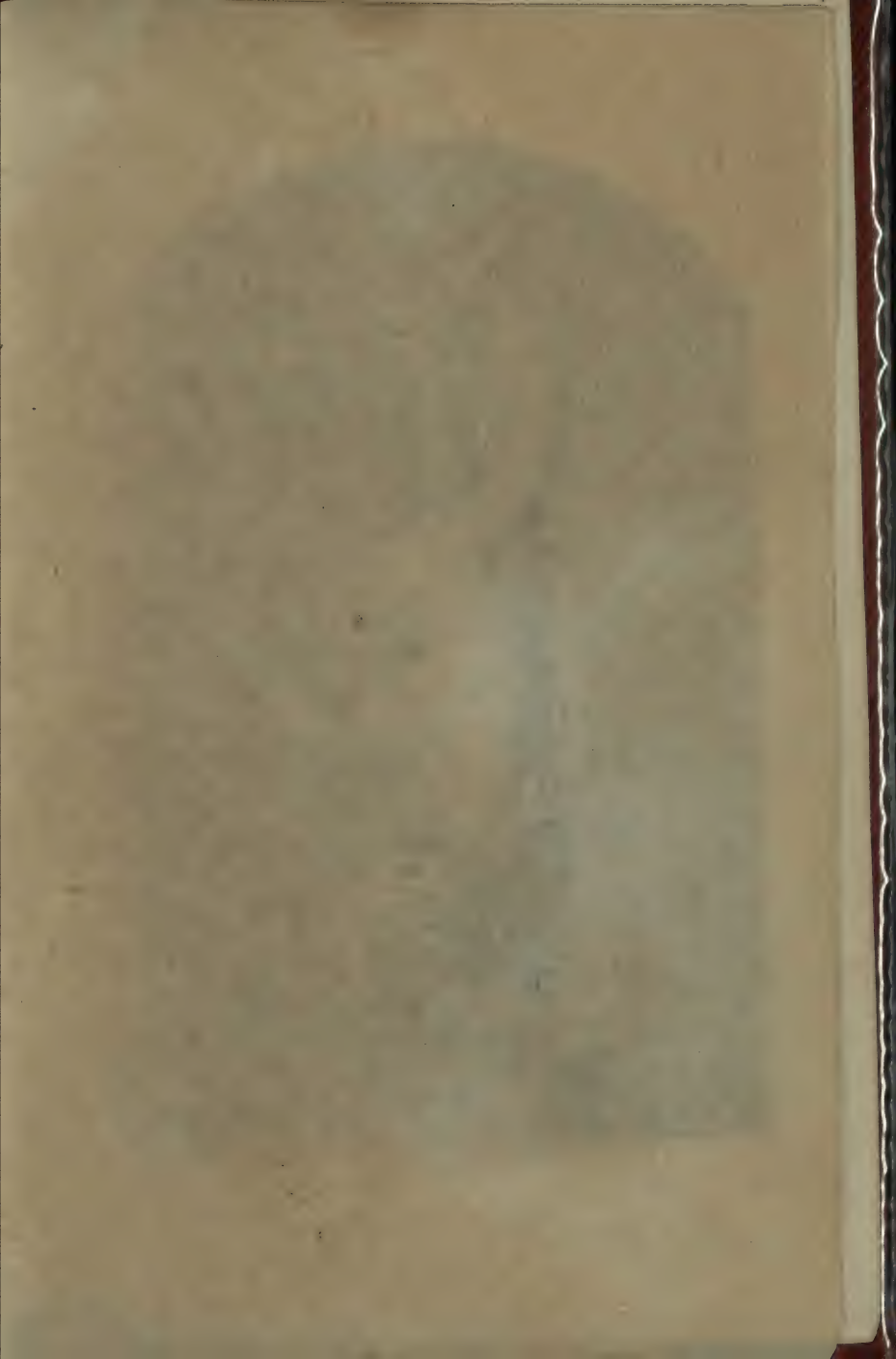




Engraved by H. Smith. From a drawing by J. Smith.

SATAN VANQUISHED BY THE ARCHANGEL.

FROM THE ORIGINAL BY STEPHENS







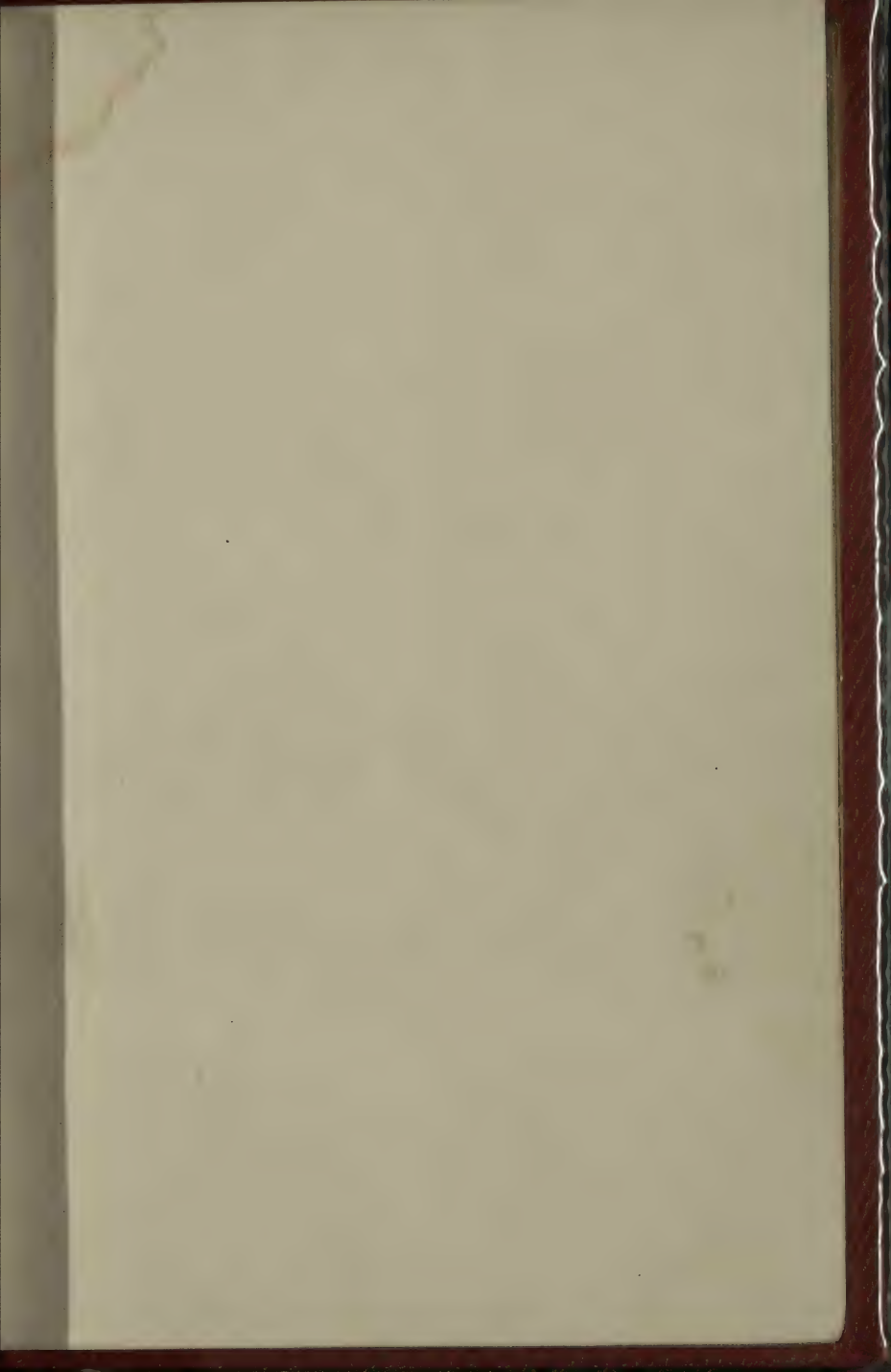
Engraved by H. H. from a Daguerreotype by H. H.

" THE ARCHANGEL MICHAEL HAVING SUBDUED SATAN "

MILTON

FROM THE ORIGINAL BY LOUGH

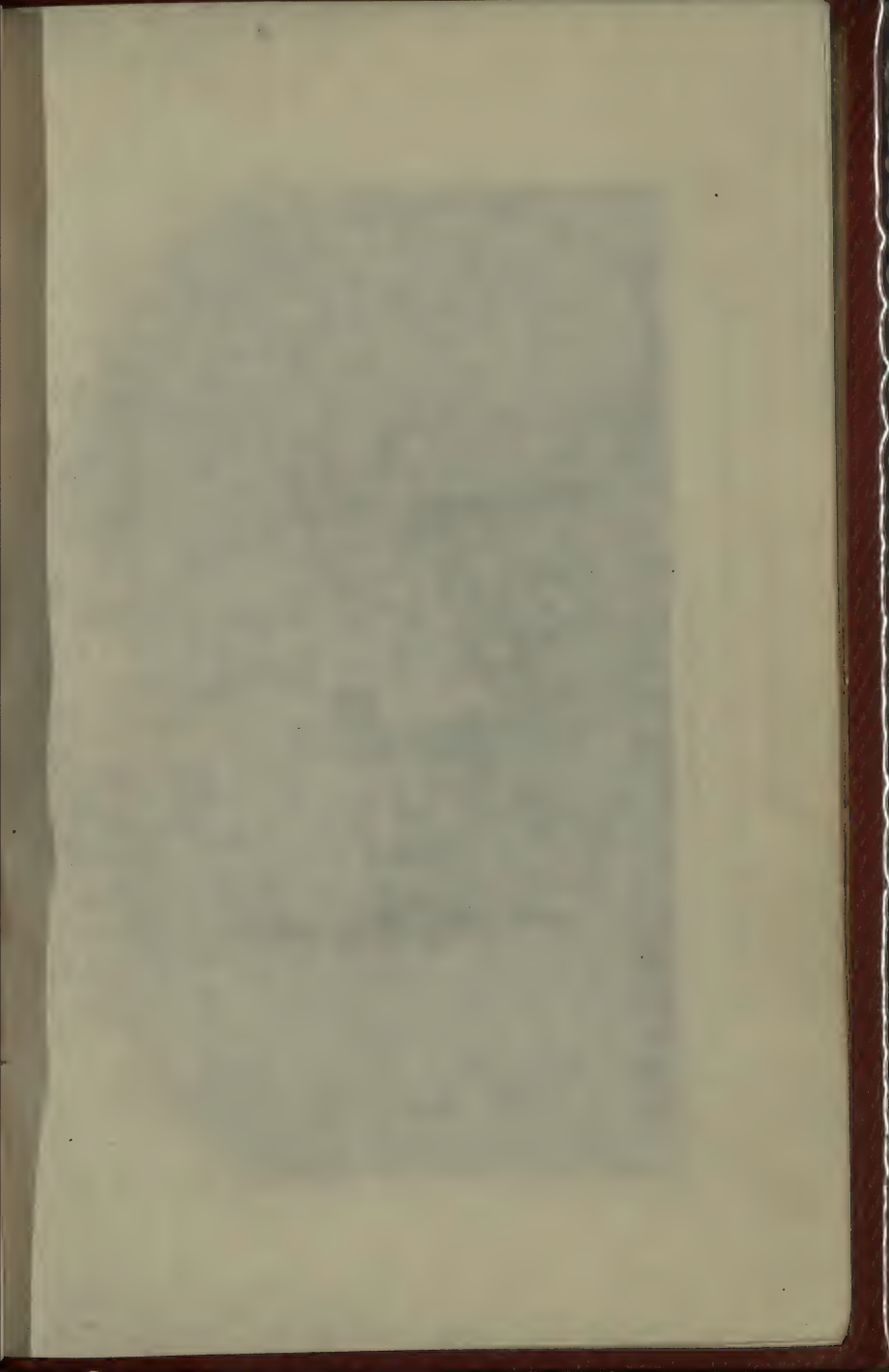




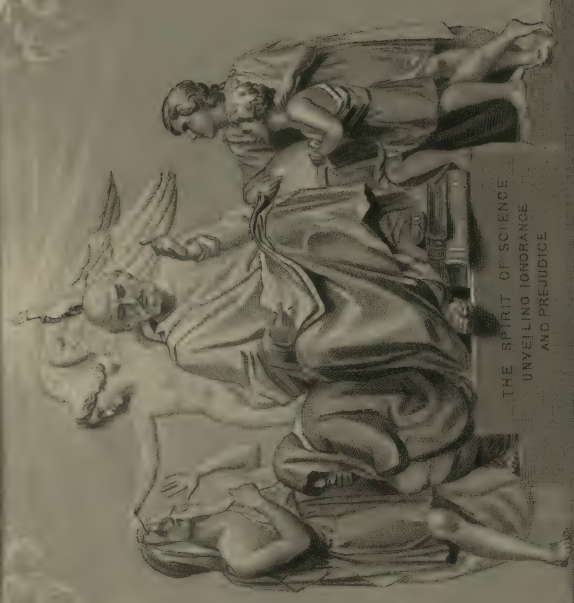


Engraved by J. G. Smith, from a drawing by J. G. Smith.

MILTON AND HIS DAUGHTERS







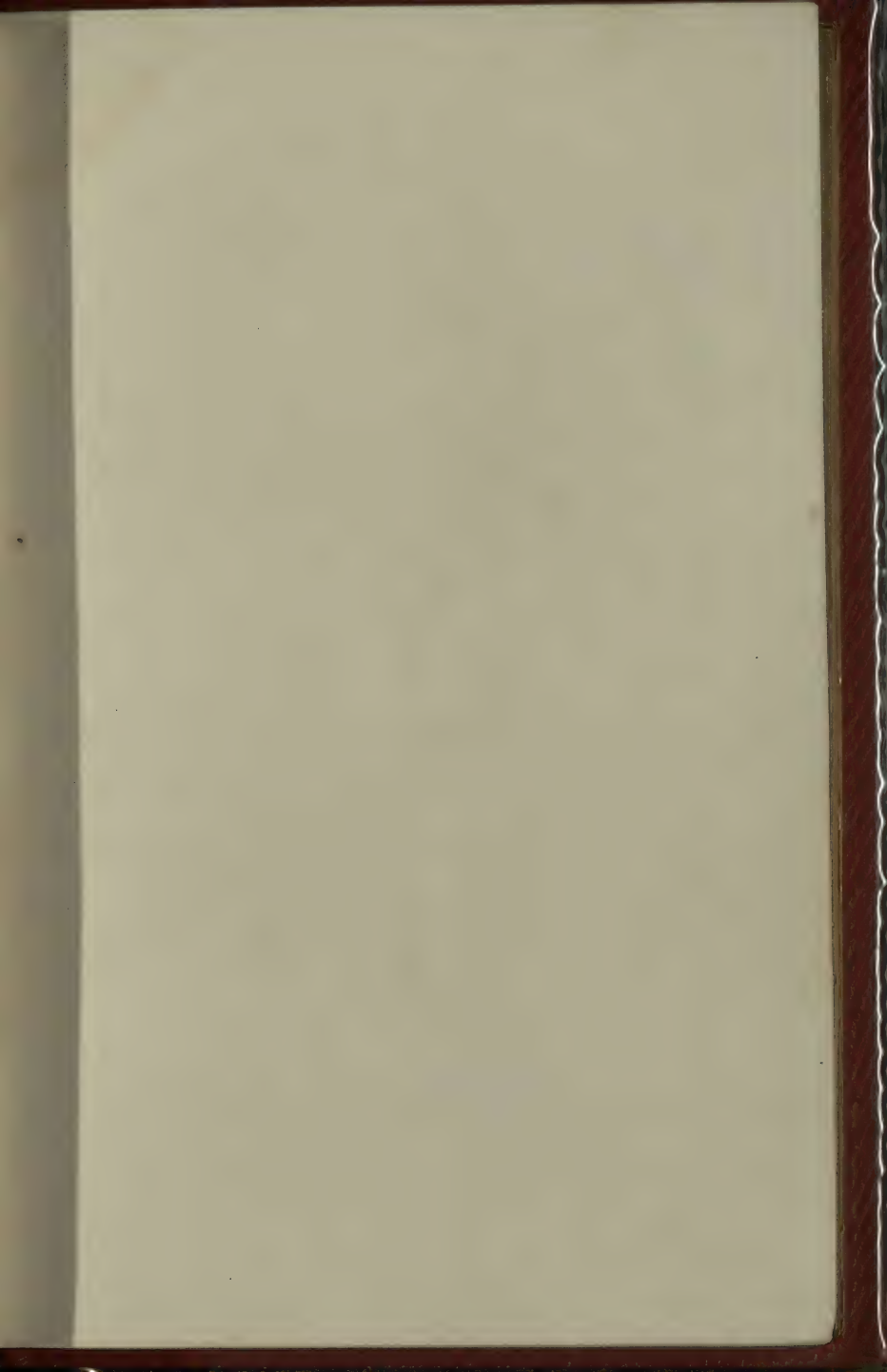
THE SPIRIT OF SCIENCE  
UNVEILING IGNORANCE  
AND PREJUDICE

Engraved by D. J. from a design by J. M. W. Turner

THE SPIRIT OF SCIENCE UNVEILING IGNORANCE AND PREJUDICE

FROM THE ORIGINAL BY THOMAS

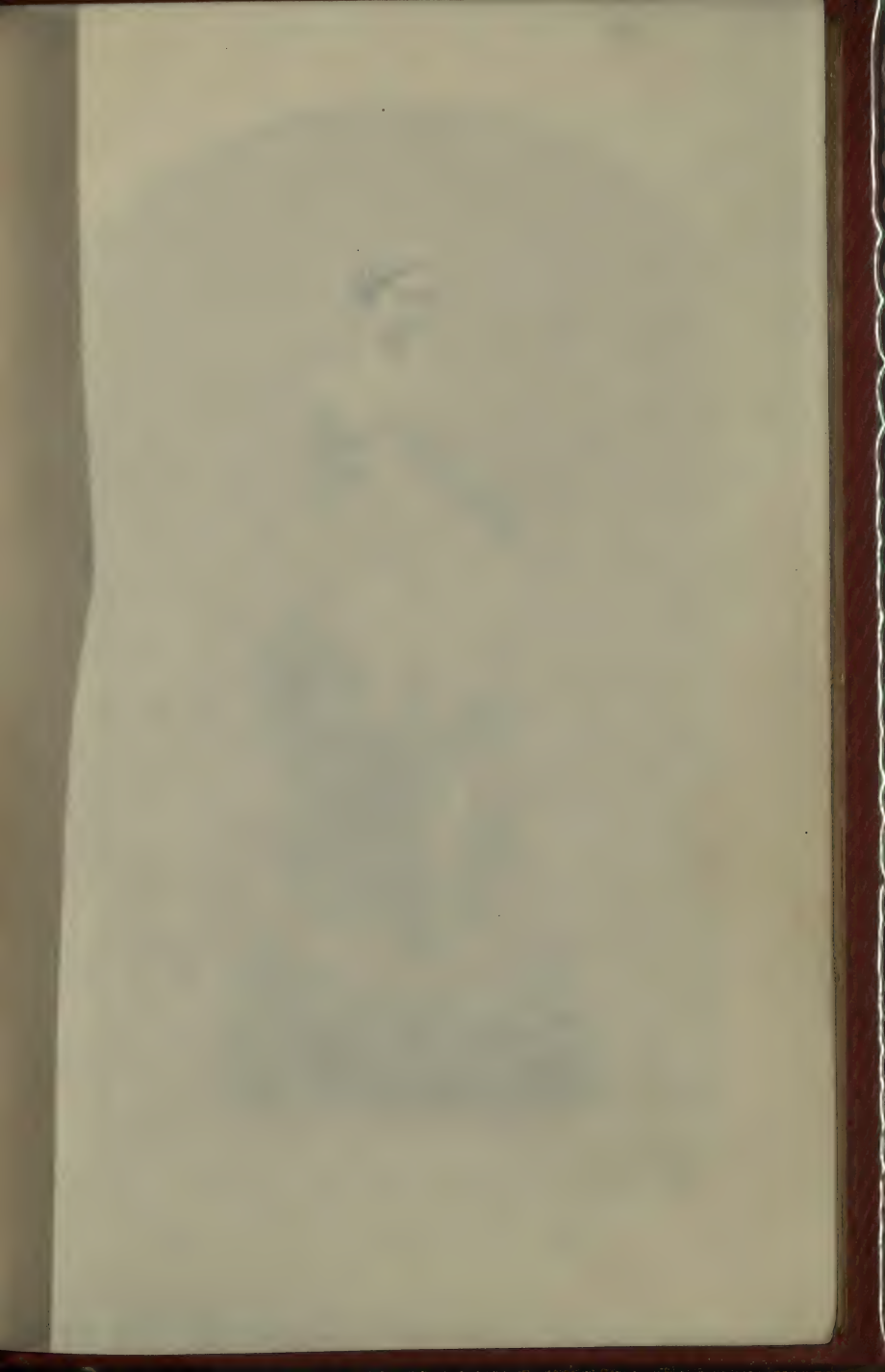






ALBION'S CORNUCOPIA IN THE MUSEUM

AND THE MUSEUM OF THE MUSEUM





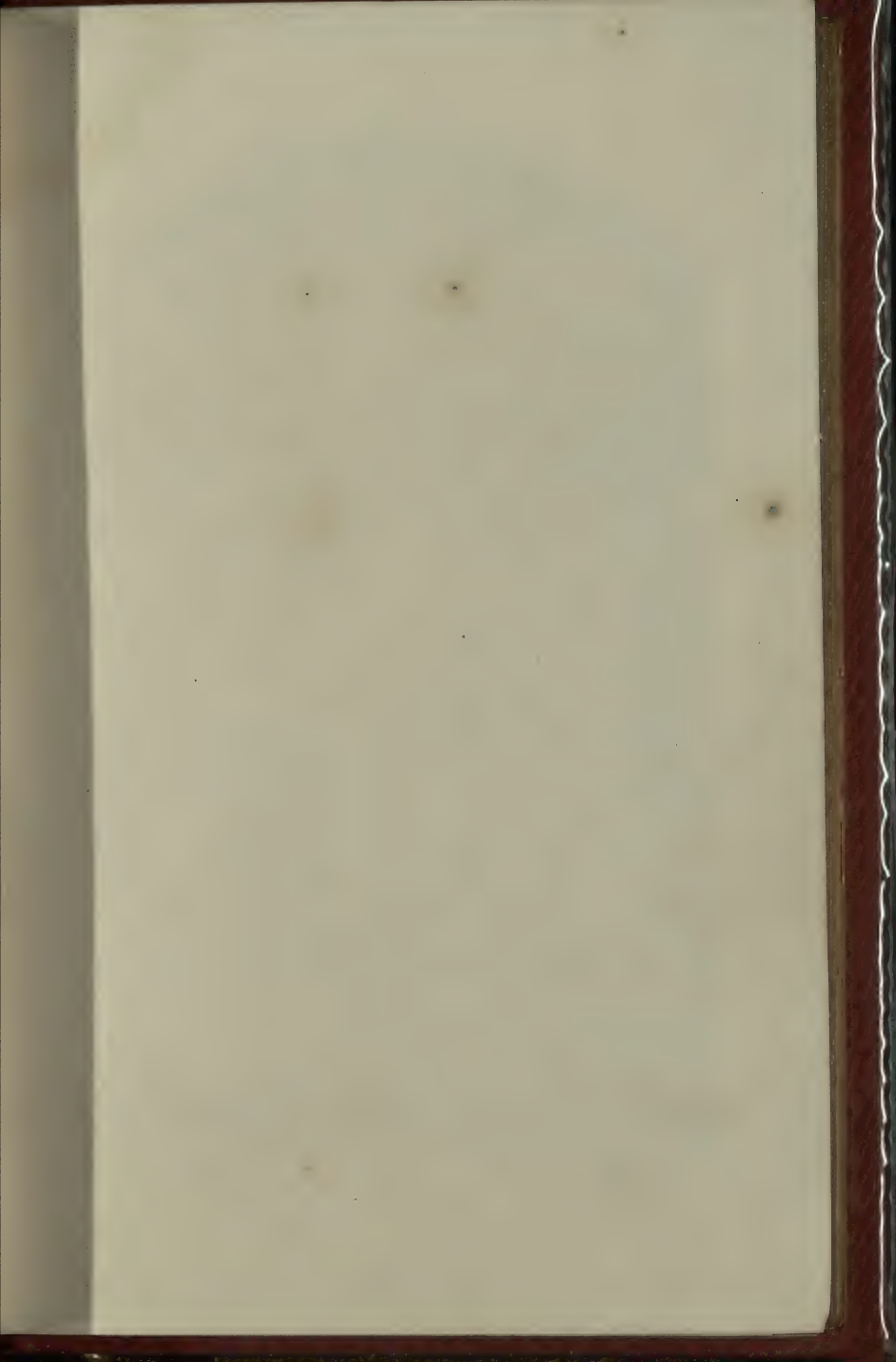


Engraved by J. H. Baily, R.A. F.R.S. from the original by E. H. Baily, R.A. F.R.S.

A NYMPH PREPARING FOR THE BATH

FROM THE ORIGINAL BY E. H. BAILY, R.A. F.R.S.

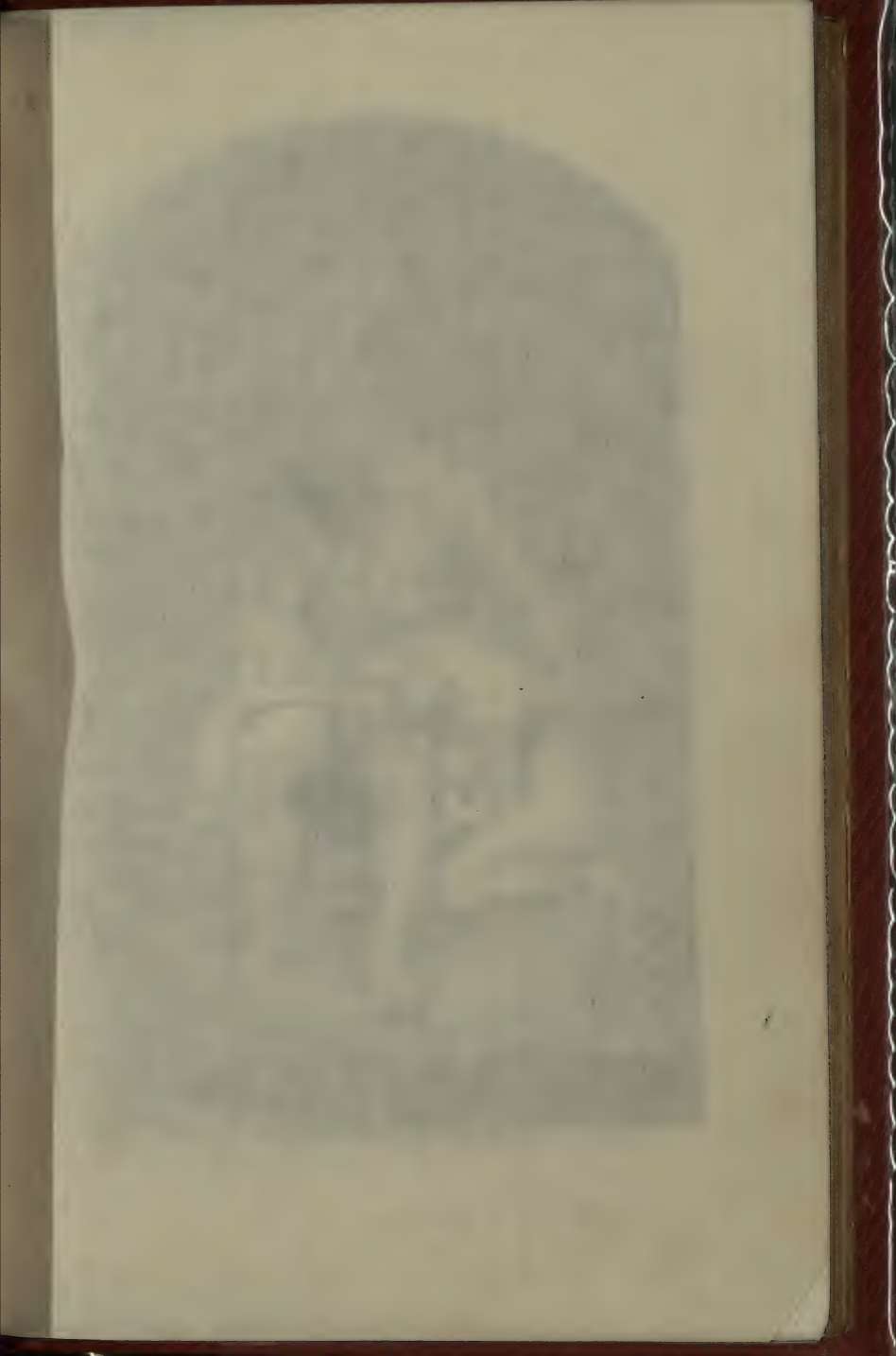




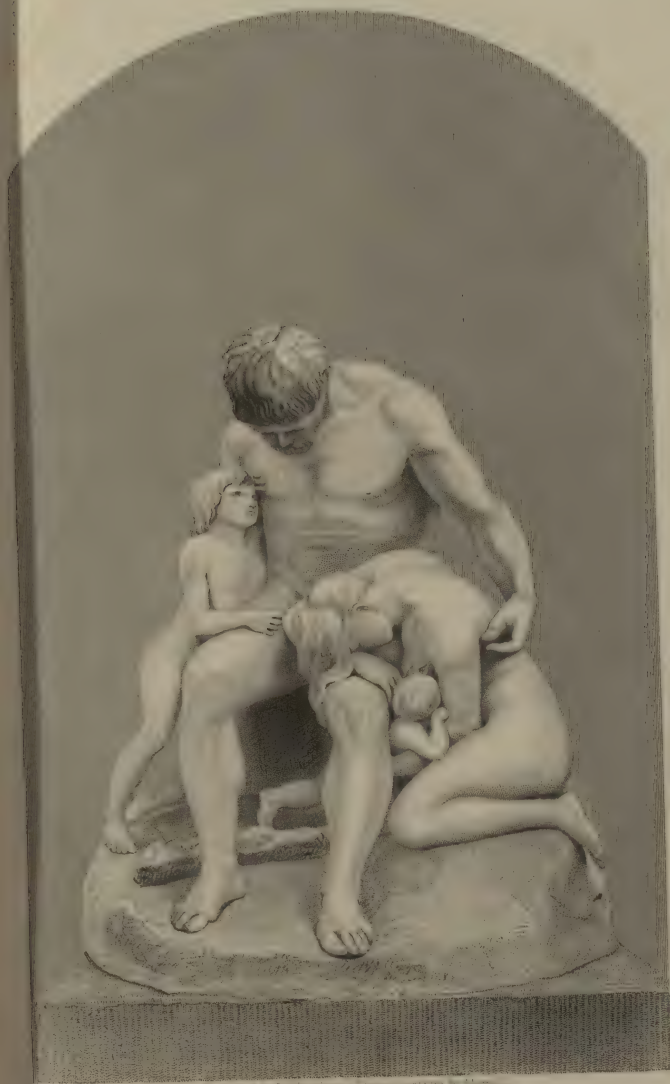


A BRUIER TO BLASTED BY FOX

ALL THE MORE CATHOLIC BY THE







Engraved by the artist's son, E. ETEX, after the original by ETEX.

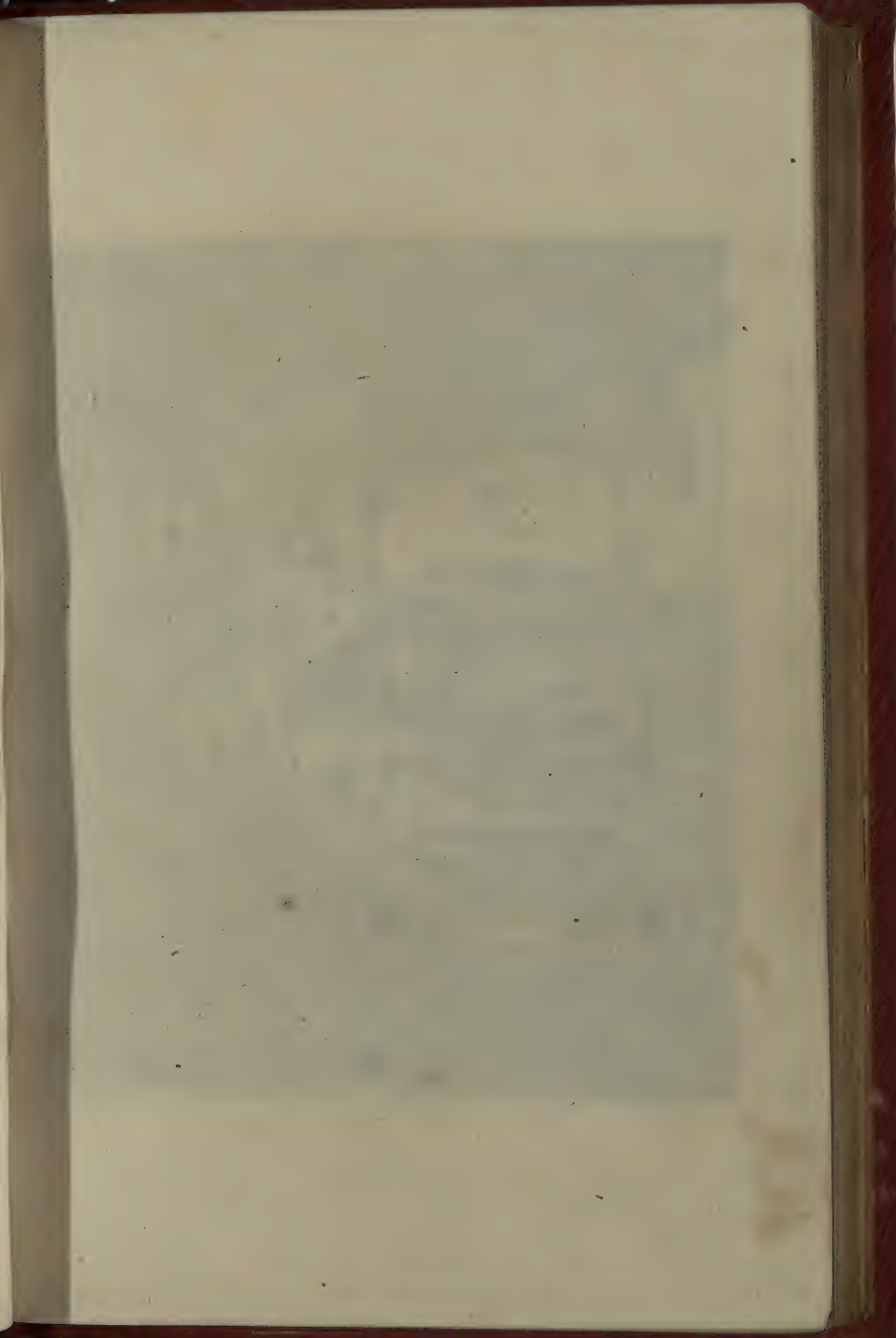
A GROUP IN PLASTER BY ETEX.

SEE OFFICIAL CATALOGUE No 1216.













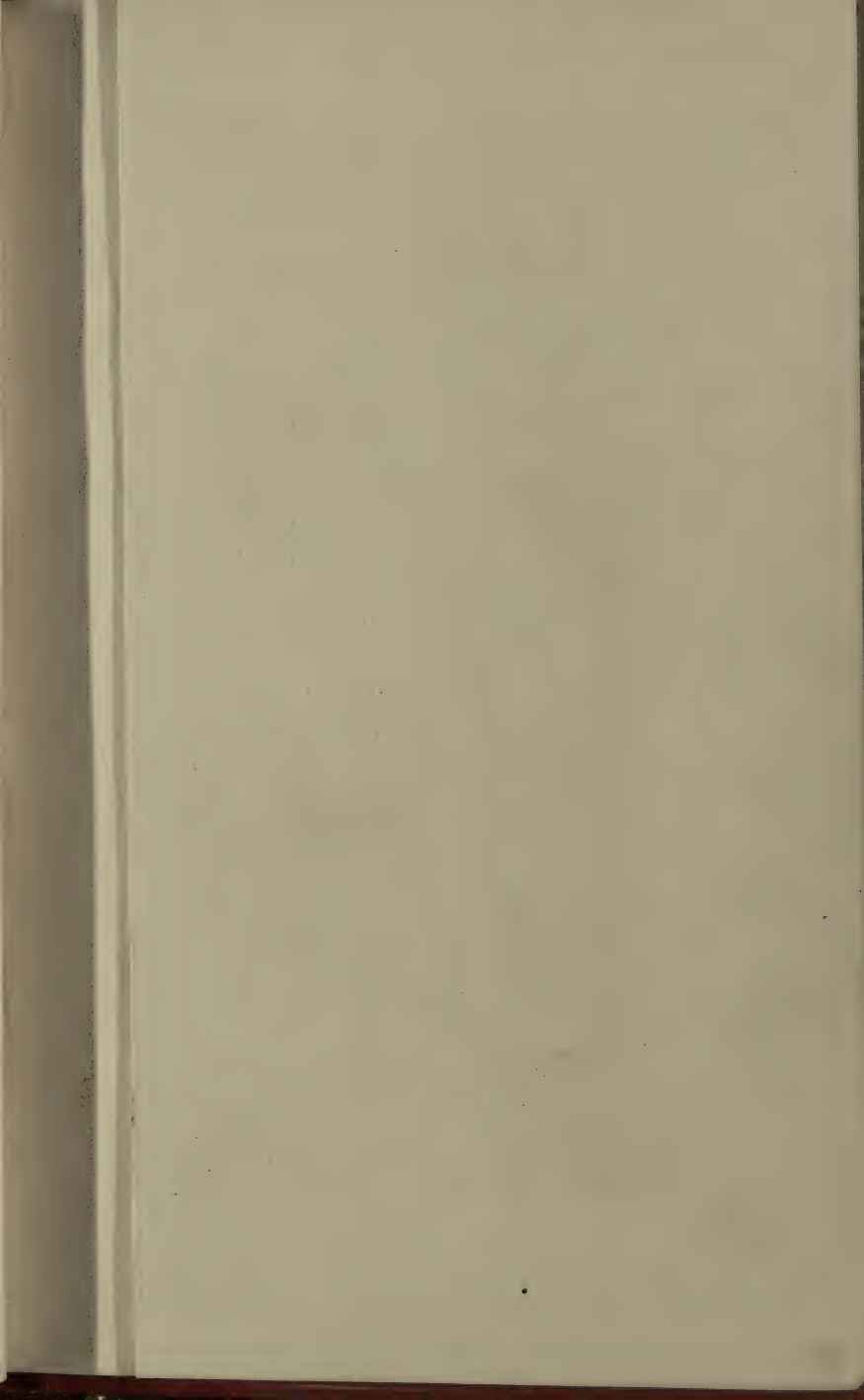
ELDON

STOWELL

Engraved by J. G. Kneller del. & J. G. Kneller sculp.

WILLIAM BARRON STOWELL AND JOHN FIRST LORD ELDON



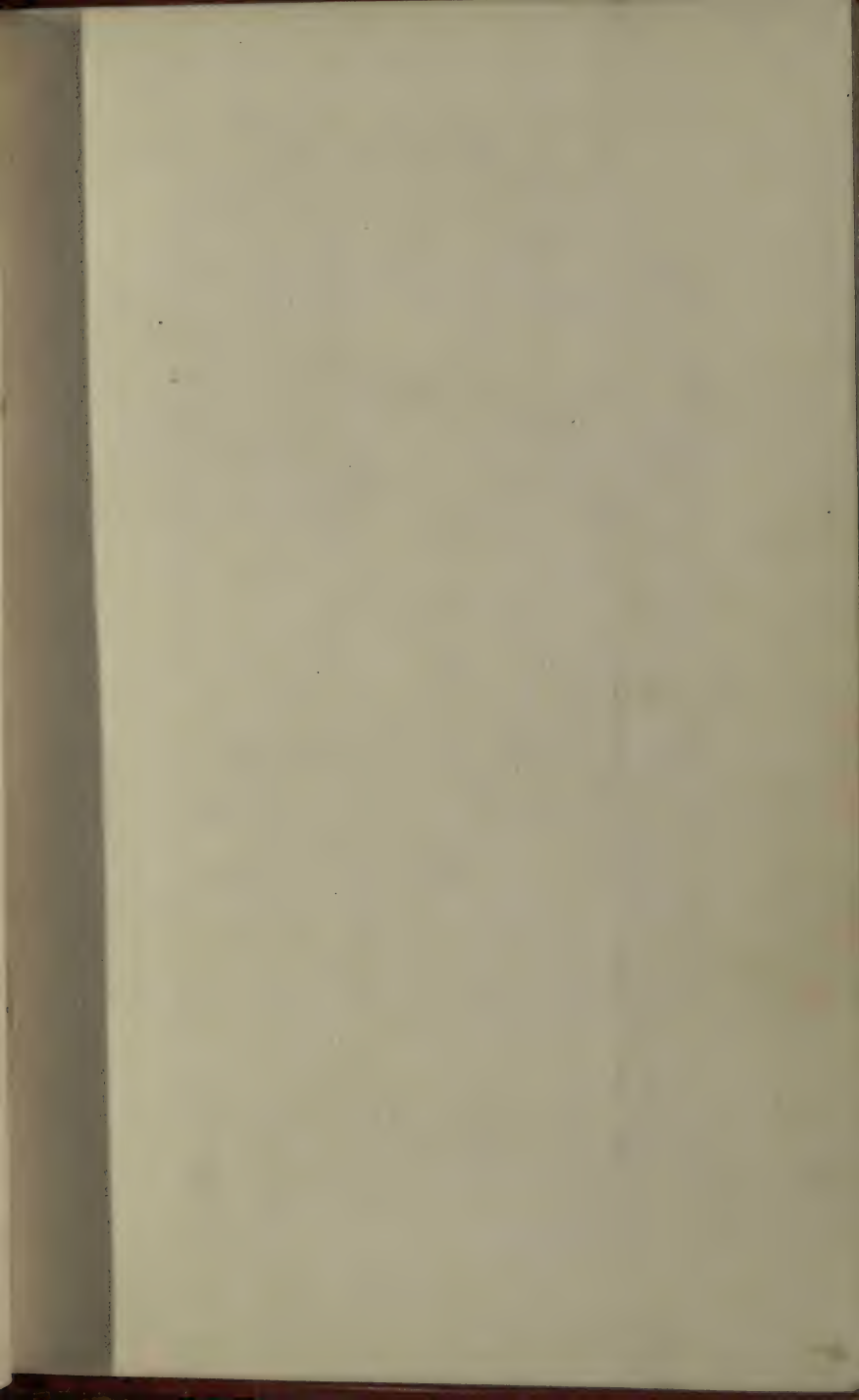




Engraved by J. Tennant from a drawing by W. G. Smith.

THE GREAT EXHIBITION, MAIN AVENUE.

LOOKING WEST

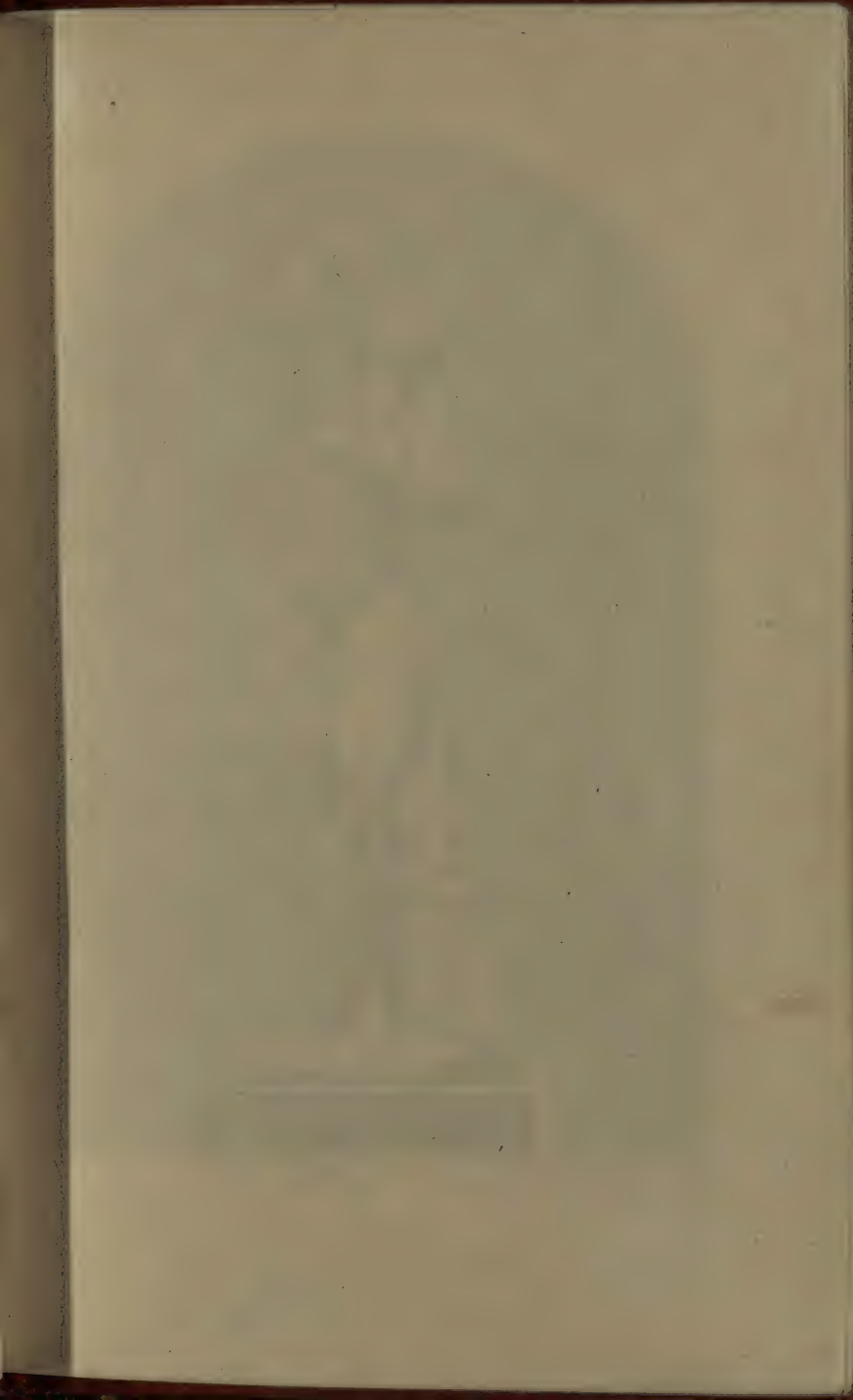




*Aphrodite of Knidos, by Praxiteles*

PLATE III

FROM THE GALLERY OF THE BRITISH MUSEUM







Engraved by Ball, from a Daguerreotype by Mayall.

THE CAPTIVE LOVE.

FROM THE ORIGINAL BY FRAIKEN



Original by Antonio Canova. Engraved by W. B. Wood.

PLATE 100

THE GALLERY







THE WOUNDED ACHILLIES.

BY GIOVANNI STANETTI OF VERONA.



EARLY SORROW.

FROM THE ORIGINAL BY J. FARRELL.







THE PET DOVE'S RETURN

FROM THE ORIGINAL BY J. FARRELL



AN EPISODE IN THE HISTORY OF THE WAR BETWEEN  
THE AMAZONS AND THE ARGONAUTS

FROM THE ORIGINAL BY J. ENGEL



THE SEATED FIGURE  
OF A WOMAN



THE  
LIFE OF  
THE  
HOLY  
FATHER  
OF THE  
CHURCH



*Engraved by J.D. Ponsard from a photographotype by Mayall*

VENUS AND CUPID

FROM THE ORIGINAL BY E. DAVIS



The young man (left) is shown in the act of killing the deer.

A DEER STALKER



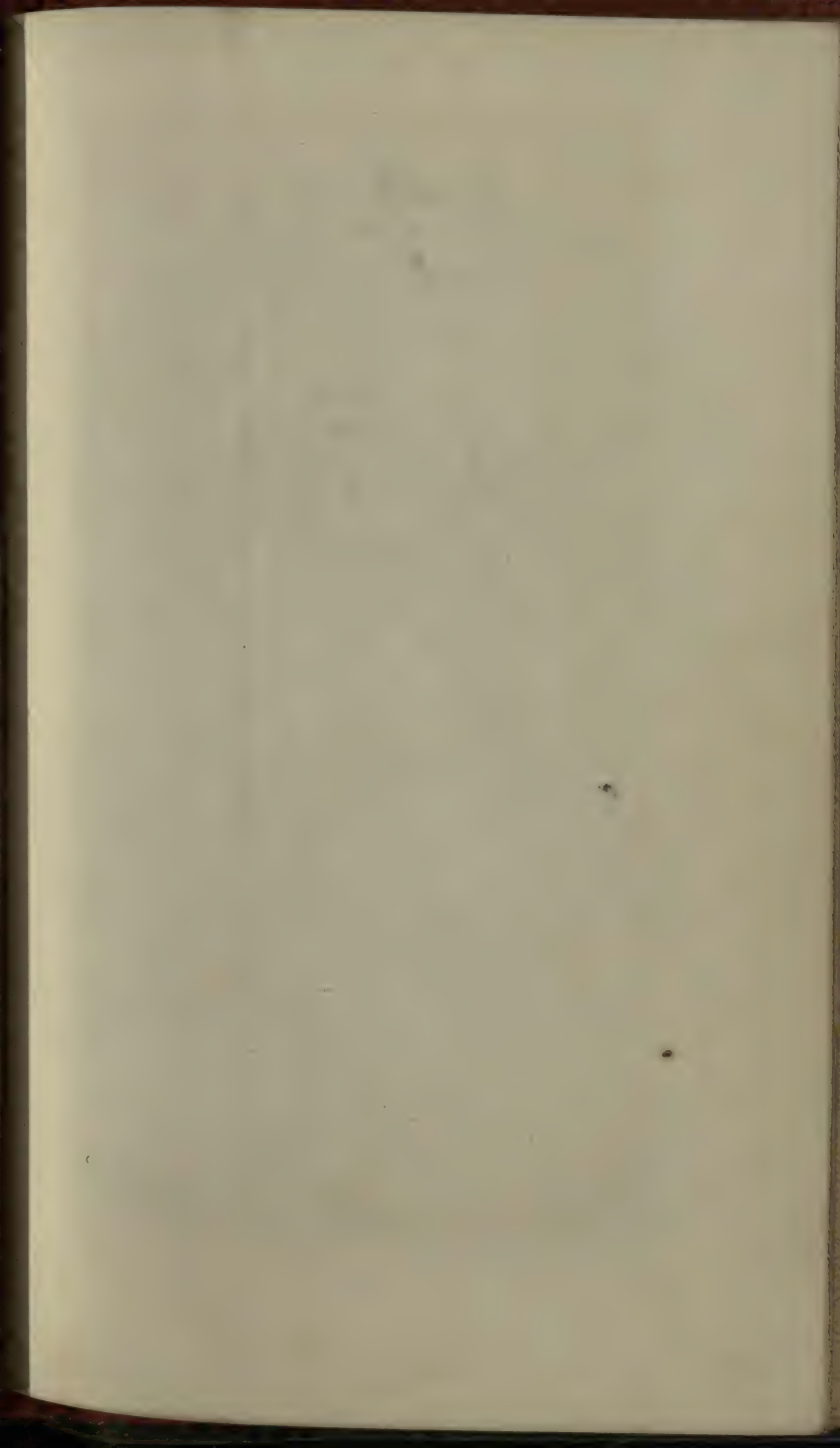


THE HISTORY OF THE CITY OF LONDON





GREAT EXHIBITION, 1893, BELGIUM.





Engraved by J. Smith, from the original in Rome.

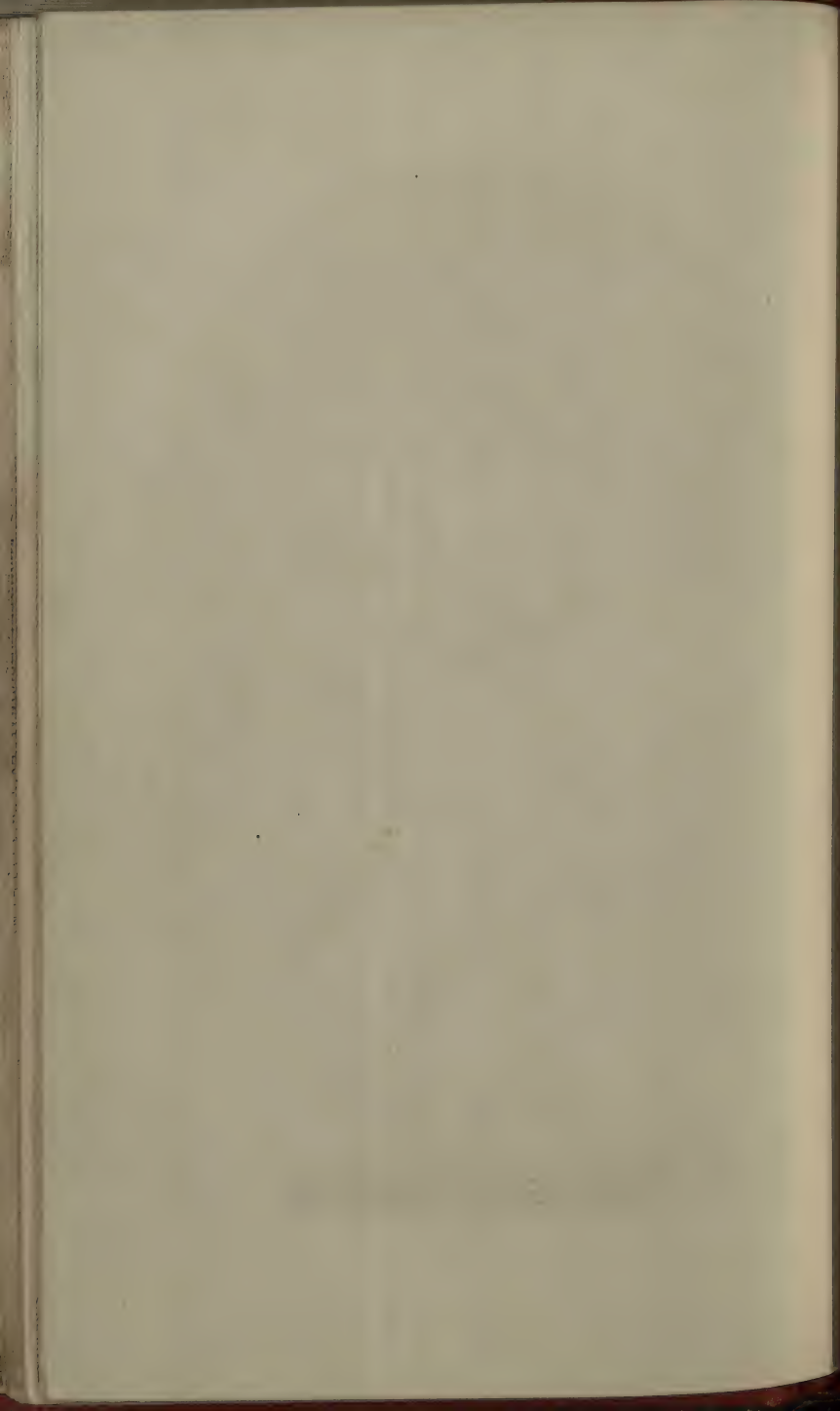
CUPID AND PSYCHE







MINERVA AND ARCTURA







resting after a run. a Daguerreotype by Beard.

RESTING AFTER A RUN.

FROM THE COLLECTION OF THE MUSEUM OF COMPTON, LONDON.







THE SUPPLIANT

FROM THE ORIGINAL BY H. WEEKES



merely in tint, but actually in colour, by the quantity of heat to which the fused mixture is exposed. In the Bohemian glass, a ruby, in particular, was produced of far greater beauty than anything which our manufacturers could accomplish. This colour is due to oxide of gold, although reds of much brilliancy can be produced by copper, and also by iron. Some examples of the reds produced by these metals were found amongst the productions of British exhibitors; and upon examining the examples of Bohemian glass, it became apparent that we can now produce glass in every respect as brilliant and as intense in colour as that which has rendered our continental friends so long celebrated. In the articles exhibited by Mr. Varnish and Mr. Mellish, these colours were well shown. Most of the glass exhibited by them was manufactured by Messrs. Powell and Co., Whitefriars, and this itself presented a noticeable peculiarity. All the glass was double, the object of this being to enable the patentees to fill the inside with a solution of nitrate of silver, to which grape sugar was added, when all the silver held in solution was deposited in a beautiful film of revived silver over every part of the glass. This *silvering* on the interior wall of the glass (globes, vases, and numerous other articles were shown to be susceptible of the process) has the property of reflecting back through the glass all the light which falls on the surface—whereas ordinarily some is transmitted, and only a small portion reflected. This exalts many of the colours in a striking manner, and not only does it exalt the colours, but the dichromism of the glass is curiously displayed. Much of the red and yellow glass thus assumes an opalescent tinge of blue, which, in some examples, is not displeasing. We greatly admired some of the coloured examples of this process, but we cannot think that the pure white glass—the beauty of which is its transparency—is in any respect improved by silvering.

The illustrations of engraving on glass were numerous, and many of them exceedingly beautiful. We particularly

admired some of the specimens by Mr. Kidd, of his new process of illuminating, embroidering, and silvering flat surfaces. All the designs were cut on the under face of the glass, and then being silvered, were thrown up in a very pleasing manner, producing an optical deception of an interesting character. In many of the engraved specimens we had the very beautiful effect of cutting through several surfaces of coloured glass, down to the translucent body. The opaque glass coating, which may be produced either by mixing oxide of tin or arsenic with the glass, is first laid over the crystal; then on this is applied the ruby glass, and where the ruby has been produced by gold the result is most satisfactory. These being cut through, present the three surfaces in any way which may be decided on by the artist. Rice Harris and Son's pressed glass was of the greatest interest. By pressing into moulds, this elegant material is produced to the public in useful and symmetrical forms, at prices considerably below those at which cut flint glass could possibly be offered. Many of the specimens of pressed glass exhibited, had a degree of sharpness in all the ornamental parts, which rendered it difficult, without a close examination, to say whether or not they had been subjected to the operation of the glass-cutter's wheel.

Among other new applications of this process of pressing glass into form, Messrs. Powell and Sons, of the Whitefriars Glass-works, exhibited their patent pressed glass for windows. There is much novelty and ingenuity in this. The pattern is pressed in the glass, and then, by a subsequent process, glass of another colour is flowed into it; the whole is then ground down to a uniform surface, and the result is an inlaid pattern of glass of one colour, in glass of another. The windows formed in this manner were very effective; and it appeared to us that they realized the results which in stained glass are only obtained by the long-continued action of the atmosphere and light. None of our modern church windows realised that "dim religious light" which is peculiar to those older fanes

standing as memorials of the piety of our forefathers. The light permeating the modern windows suffers ordinary chromatic analysis, and falls upon the floor in well-defined colour, and the outline of the design can be easily traced. In those of olden time the colours fall blended; there is a general diffusion of tones, no one colour coming out more decidedly than another. Upon examining old glass windows it will be found that the utmost pains had been taken to secure this effect; the glass is often purposely roughened; frequently pieces of different colours are blended; but still the action of time and the abrasion of the exposed surface is the important agent to which the harmonious effect is due. Messrs. Hardman and Co. have had glass manufactured purposely to endeavour to imitate the required condition of the mediæval styles, and in many of their windows they have been eminently successful.

The antiquity of pressed glass is very remarkable. The Assyrians, the Egyptians, the Greeks, and the Romans, all adopted the process of pressing or squeezing the glass, when it was in a pasty state, into moulds. Some fine examples of this will be found amongst the glass series in the Museum of Practical Geology. The examples of plate-glass were exceedingly good. The Thames Plate Glass-works exhibited at the western end of the building the largest plate glass hitherto manufactured. The examples of British plate which were found in the Spitalfields trophy were beautiful specimens of this class of manufacture. On the whole, the glass manufacture of the Exhibition—commencing with the sands, alkalies, and models, and terminating with the great Glass Palace itself, and its fancy fountain—was exceedingly complete, and of the highest interest.

## CHAPTER XIV.

PRECIOUS STONES—MR. HOPE'S COLLECTION—THE DIAMOND, SAPPHIRE, EMERALD, GARNET, ETC. — QUEEN OF SPAIN'S JEWELS—THE JEWELLED HAWK—PEARLS.

THE high estimation that in all ages has been bestowed upon jewels and precious stones, is perhaps sufficiently to be accounted for, when we take into consideration their essential qualities of light, colour, and durability; and the correspondence which, in consequence of these valuable attributes, they possess with respect to the more elevated principles in the world of mind. Frequent mention is made of them in Holy Writ, from the breast-plate of Aaron described by Moses, to the sublime account in the Apocalypse of the wonders of the Holy City, its shining courts, and its gates of pearl, in all which description there is doubtless involved some mystic meaning connected with the future glorious destiny of the church, not obviously apparent to the merely superficial or general reader.

In the world of poetry, too, constant recurrence is made to the different qualities of precious stones, and their reference to various physical endowments. Mental acuteness, and brilliancy of imagination, are invariably likened to the radiance of the diamond, whilst constancy and truth are equally represented in its unchangeableness and its durability. What can be more appropriate or beautiful than the lines of Collins, where, in illustration of the playfulness of wit and repartee, in one of the characters in his Ode to Music, he says—

“The jewels in whose crisped hair  
Were placed each other's beams to share.”

And with respect to personal beauty, who among all the votaries of Apollo ever neglected, in speaking of the brilliancy of his mistress's eyes, to compare them to the lustre of the diamond, her teeth to orient pearl, or

her lips or her cheeks to the glowing ruby? The treasures of the secret mine have indeed been an inexhaustible source of comparison and metaphor, from the days of old Anacreon to those of his great rival and imitator, of Hibernian celebrity.

Pliny, and other early writers on the subject of gems, attributed various occult qualities and miraculous powers to precious stones in general; they were also supposed to possess rare medicinal qualities, an opinion sanctioned by our own great philosopher Boyle, in whose time were to be found in the *Materia Medica* such compositions as the *Electuarium e Gemmis*, *Confectio de Hyacinthis*, &c., with which the more opulent of our forefathers endeavoured to ward off the stroke of death. The diamond more particularly enjoyed a high repute for these and other hidden virtues; it was considered as an infallible specific in many diseases, and a test of conjugal fidelity, a reconciler of domestic strife, and an amulet of highest power against poisons, insanity, witchcraft, incantations, nocturnal goblins, and evil spirits.

Never before in the history of the world was there so large a collection of valuable gems and exquisite specimens of the lapidary's art collected in one building as was exhibited in the Crystal Palace. The Exhibition contained the finest diamond, the finest ruby, and the finest emerald known to the world. For a sight of a single one of these stones an adventurous voyager traversed enormous distances two centuries ago, and by dint of extraordinary influence, audacity, and fortune, was enabled to record himself as the only European who had ever succeeded in the attempt. That stone was lately placed in Hyde Park, and might have been seen by any working man in the country for a shilling. The richest collection of treasures ever known was formerly to be found at Dresden. Its existence was due to a singular succession of wealthy and acquisitive princes, in an age which favoured such fancies; its preservation, to an impregnable fortress within a few miles of the capital. It was deposited with extreme care in the vaults

of the royal palace, and was only to be seen on the payment of a considerable fee, and after compliance with stringent conditions. Travellers and travellers' guides were full of the magnificence of these "Green Vaults," of the matchless splendour of their contents, and the unparalleled cost of their ornaments. Yet, if the "Green Vaults" could have been transferred bodily to Hyde Park, they would not have constituted either the richest or the most curious of the hundred compartments of the Crystal Palace. In objects of historical interest they would, of course, surpass what professed to be an exhibition of modern industry alone; but in singularity and value the collection would be altogether excelled by the contributions around it. Of the splendid and unpurchaseable diamond called the "Mountain of Light" we have spoken in a former chapter.

A most valuable and interesting addition had been made to the department of gems and precious stones in the Exhibition, by Mr. A. J. B. Hope, M.P., who deposited therein a portion of his valuable collection. They were placed upon a pedestal firmly secured to the floor, and covered with a circular iron frame, made by Mr. Chubb, similar in form to that which contained the priceless Koh-i-Noor. In this collection of Mr. Hope was the largest known pearl in the world; its length was 2 inches, its circumference  $4\frac{1}{2}$  inches, and its weight 3 ounces, or 1,800 grains. Near this splendid specimen was placed a very beautiful Hungarian opal  $1\frac{1}{8}$  inch in length, by  $1\frac{5}{16}$ th in breadth. A third specimen was the handle of the favourite weapon of Murat's, "the handsome swordsman," the hilt of which was formed of a single beryl or aquamarine. A rough beryl deposited near it showed its original condition. "Le Saphir Merveilleux"—a sapphire of an amethystine colour by candle-light—was viewed with interest by every admirer of the delightful productions of Madame de Genlis, one of whose most charming tales is founded upon this very stone, which was formerly in the possession of Philippe Egalité; with many other specimens of equal interest.

Among the minerals employed for personal decoration, the diamond evidently occupies the most prominent position, both on account of the beauty of the gem itself, and also because of its immense commercial value. The diamond, like charcoal, is composed of carbon; and, in a chemical point of view, differs from it only in being perfectly free from traces of the earthy and other impurities with which the latter substance, even when most carefully prepared, is to a considerable extent contaminated. This mineral, although principally used in ornamental jewellery, is likewise applicable to many other purposes; in consequence of its extreme hardness it is now extensively employed for making the pivot-holes of the better description of watches; it has also been used in the formation of holes through which very fine metallic wires are drawn, besides furnishing the only convenient tool which can be employed for cutting glass.

The countries in which this gem has been as yet discovered are far from numerous, the only localities in which it is found being the Indian peninsula, Brazil, the island of Borneo, and Siberia, on the western side of the Ural mountains. Its geological position appears to be among diluvial gravel and conglomerate rocks or pudding-stone, consisting chiefly of rolled flint pebbles and ferruginous sand. India has from the most remote ages been celebrated for the beauty and magnitude of its diamonds, the largest and most valuable of which are obtained from the mines in the provinces of Golconda and Visapoor. The tract of country producing these gems extends from Cape Comorin to Bengal, and lies at the foot of a chain of mountains called the Orixá, which appear to belong to the trap-rock formation. The diamonds obtained from even the richest localities are rarely procured by directly searching the strata in which they are found, since they are commonly so coated with an earthy crust on the outside, as not to be readily distinguishable from the various other substances with which they are associated. For this reason the stony matter is first broken into frag-

ments, and then washed in basins for the purpose of separating the loose earth; after which the residual gravel is spread out on a level piece of ground, where it is allowed to dry, and where the diamonds are recognised from their sparkling in the sun—thus enabling the miners readily to discriminate between them and the stony matters with which they are associated.

Among the other minerals much prized by the jeweller, many specimens of which were found in the Crystal Palace, may be mentioned the sapphire, which, when perfectly transparent and of a good colour, is as highly esteemed as the diamond. This gem is almost entirely composed of alumina, the various colours of different individual specimens being occasioned by extremely minute admixtures of the metallic oxides. Those having a blue colour are known as Oriental sapphires, whilst others not having the same oxides in combination are differently coloured, and consequently receive various distinctive names. When red, they are called Oriental rubies; when yellow, Oriental topazes; when violet, Oriental amethysts; and when they are hair-brown, adamantine spar. The finest blue specimens of this gem have been procured from Ceylon. The most esteemed red varieties come from the Capelan mountains, in the kingdom of Ava; and the smaller stones of the same kind are occasionally met with in Saxony, Bohemia, and Auvergne. Amethysts are principally brought from the Carnatic, on the Malabar coast, and elsewhere in the East Indies.

The emerald is a precious stone of a beautiful green colour, valued next to the diamond, and in the same rank as the Oriental ruby and sapphire. It occurs crystallized in regular six-sided prisms, and has a specific gravity of 2.70. In composition this gem may be considered as a double silicate of alumina and glucina, mixed with variable small portions of iron and a little lime.

The garnet is a vitreous mineral belonging to the cubic system, and of which the predominating form is the rhomboidal dodecahedron. Its constituents are silica, alumina,

lime, and protoxide of iron. It is usually found disseminated in the primitive formations, and frequently occurs in gneiss and clay-slate. Garnets are abundantly met with in many parts of Europe, particularly in Germany; but those of Pegu are the most esteemed.

Quartz, or silicic acid in a crystalline form, is also frequently cut for ornamental purposes, and, when limpid and entirely free from flaws, is a very beautiful stone. When existing in the form of calcedony, and variously coloured by metallic oxides, the substance receives the name of cat's-eye, plasma, chrysoprase, onyx, sardonyx, &c. It has a vitreous lustre, a conchoidal fracture, and a specific gravity of 2.65.

The chrysolite, called "peridot" by Haüy, and the French mineralogists, is probably the topaz of the ancients. It is the softest of the precious stones, being scratched by the file or a fragment of quartz.

Among the numerous examples of this mineral, as adapted for ornamental purposes, may be mentioned various very beautiful stones from Cairngoram, in Aberdeenshire, both cut and in the natural state. A case containing some specimens of peculiar brilliancy was exhibited by Mr. Jamieson, of Aberdeen, near the western extremity of the space allotted to mineral productions. Some fine specimens in their natural state were to be seen in the Highland stall of Mr. M'Dougall, in the gallery on the south side of the transept.

Opal, or uncleavable quartz, has a conchoidal fracture, with a resinous or vitreous lustre, accompanied by a strong play of colours. It occurs in kidney-shaped or stalactitic concretions, and has a specific gravity of 2.091. Hungary was long the only locality of precious opal, where it occurs in connexion with common opal in a sort of porphyritic formation. Lately, however, some very fine specimens of this substance have been discovered in the Faroe Islands; and most beautiful ones, sometimes quite transparent, are obtained near Gracias a Dias, in the province of Honduras, in America. The red, yellow, and other coloured varieties

of opal, are chiefly found near Limapan, in Mexico. In modern times, fine opals of moderate dimensions have frequently been sold at prices nearly equal to those obtained for diamonds of the same bulk. They are especially esteemed by the Turks, and are usually cut into a convex shape. The value set on this stone by the ancients appears to have been very extraordinary, as Nonius, the Roman senator, preferred banishment to parting with his favourite opal, which was coveted by Mark Antony.

The turquoise, or calaite, is a massive mineral found only in the neighbourhood of Nichabour, in Persia, and is highly prized as an ornamental stone in that country. Its colour is greenish-blue, but those varieties are most esteemed in which the blue predominates. It is composed of alumina, oxide of copper, oxide of iron, and phosphoric acid, and has a specific gravity varying from 2.83 to 3.00. There is also another totally different variety of this substance, known by the name of bone turquoise, which appears to be a phosphate of lime more or less coloured with phosphate of copper. Malachite, or green carbonate of copper, is also frequently used for personal decoration; numerous specimens were to be found in the Russian department, worked up into a variety of splendid objects.

Besides the Hope Jewels, already noticed, there was a magnificent display belonging to the Queen of Spain, exhibited by M. Lemonniere, of Paris, consisting principally of diamonds, pearls, rubies, and emeralds, the diamonds greatly preponderating. They were, perhaps, the best specimens of well-set gems that were exhibited. In point of radiance and gorgeousness, however, the "Diamond and Ruby Stomacher" by Morel, was a powerful rival to the most splendid of all these costly adornments—a truly sumptuous production, upon which the jewellery trade of England might be bold to stake its reputation in the face of the world. It was originally intended and designed as a bouquet, but was equally, perhaps more appropriately, available as a stomacher; moreover, it was so constructed as to separate into several distinct pieces of

jewellery, according to requirement. The diamonds were all of the finest water, and the rubies were described as "a unique collection." The setting was contrived with springs, resulting in a waving or slightly oscillating motion when in use, which displayed to the fullest extent the brilliant colours of the stones.

Messrs. Hunt and Roskell were large contributors to the splendours of this department. The principal and all-attractive object among the various treasures they exhibited was a magnificent diamond bouquet, a perfect specimen of the art of diamond setting. The flowers (comprising the anemone, rose, carnation, &c.) were all modelled from nature. This brilliant structure was divided into seven different sprigs, each perfect in design; and the complicated flowers, by mechanical contrivances, were so arranged as to separate for the purpose of effectual cleaning. In the production of this costly work nearly 6,000 diamonds were employed, the largest of which weighed upwards of ten carats, whilst some of the smallest, in the stamens of the flowers, did not exceed the thousandth part of a carat. We also observed from the same party an ornament for the head, composed of branch coral, ornamented by leaves of enamel and gold, enriched with diamonds, a very elegant production, of chaste effect.

There were also several brooches, bracelets, and other ornaments, enriched with diamonds and other precious stones, not the least curious amongst which were some specimens of ear-rings in emeralds, diamonds, carbuncles, &c., after the sculptures from Nineveh. Messrs. Paravagna and Casella, from Genoa, also sent a variety of ornaments of the same material. We may here remark that red coral has, from time immemorial, been used in jewellery, in all parts of the world, in beads, brooches, drops, bracelets, charms, studs, and fancy contrivances. The price varies from one shilling up to £5 and £20 per ounce. The best colours are considered a bright red or pale pink: the latter is most scarce. We must not confound with this substance the coral reefs found by mariners, as they are nothing but

a spongy white rock, having no analogy whatever with the real red coral. The fishery of the real coral is carried on in the Mediterranean Sea. The largest samples are taken along the Barbary coast, but not the darkest colours. Along the coast of Spain a considerable quantity is taken annually, of a deep red colour, but sometimes rather wormy. The pink and deepest red, but in comparatively small branches, are taken in the Straits of Bonifacio, between Corsica and Sardinia. The amount annually taken varies from £100,000 to £200,000, the principal stations for the fishing-smacks being La Torre del Greco, near Naples; Leghorn; and Santa Margherita, near Genoa. This article is supposed to give employment to from 10,000 to 20,000 hands.

Not, however, to weary our readers with too lengthened an account of these "glittering gauds," we shall for the present close our caskets of diamonds with a brief notice of the Jewelled Hawk, the property of the Duke of Devonshire, in the Netherlands department, whose history is not without interest. It rejoiced in a name proper, being the "Knyphausen Hawk," and was made, many a long year ago, to commemorate the reconciliation of two noble Dutch families which had been long at variance. It contained within its gay plumage the identical gold drinking-cup which was used by the rival counts upon the auspicious day of their reconciling, and which was discovered upon removing the head of the bird. The wings and body were chiefly covered with rubies; turquoises, emeralds, and other precious stones, were displayed in other parts. The bird stood about a foot high, more or less, and had a very stately appearance.

We must now be allowed to make a few remarks upon pearls, since, although they cannot exactly be classed among precious stones, they must still be included under the head of "jewels;" indeed without them the richest casket on the toilet of the duchess would be considered as incomplete. We shall on this head avail ourselves of the following observations of an able contemporary in the

pages of the *Westminster Review*. And first, with respect to mother-of-pearl. "The brilliant lustre and gleaming iridescence of its shelly envelope are not always destined to remain hidden in the depths of the ocean, or immured within mountains of rock. The painted savage appreciates its pearly charms, and plunges beneath the waves to seek the living joints of his simple necklace and armlets, or to supply his civilized brother with highly-prized materials for more elaborate ornaments. Mother-of-pearl, as it is called, is the nacreous portion of the shells of certain molluscs belonging to very different orders. Its charming colouring is not due to pigments, but caused by the arrangements of the layers of membrane and solid matter of which it is composed. The nacreous shells which furnish it are now sought for greedily wherever they can be obtained in sufficient quantity, and form articles of considerable import. From our own seas, or rather from the sea around the Channel Isles, we procure the *Haliotis*, or sea-ear, to use in the decorations of papier-maché work, and other and larger kinds of the same curious genus are brought from the shores and islands of the Pacific Ocean for the same purpose. They furnish the deep-coloured and richer-hued dark-green and purple mother-of-pearl; the brighter and paler kinds are derived from the shells of the pearl-oysters, almost all inhabitants of tropical regions. The nacre of pearls themselves is identical with the substance of these shells. These jewels of animal origin, so highly prized for their chaste beauty, are only the rejected or superabundant secretions of a shell-fish consisting of concentrically-disposed layers of animal matter and carbonate of lime. In most instances they are consequences of the attempts of irritated and uneasy molluscs to make the best of an unavoidable evil; for, rendered uncomfortable, their peace of mind and ease of body destroyed by some intruding and extraneous substance—a grain of sand perchance, or atom of splintered shell—the creature incloses its torturing annoyance in a smooth-coated sphere of gem-like beauty. Would that we bipeds could treat

our troubles so philosophically, and convert our secret cankers into sparkling treasures!"

Shakspeare has observed that—

"To gild refined gold, to paint the lily,  
To throw a perfume on the violet,  
Were wasteful and ridiculous excess,"

and we might equally suppose that any attempt to impart an additional value to the priceless commodities we have been describing in the present chapter would be just as hopeless and unavailing. Nevertheless the hand of Art has not laboured upon them in vain. Engraved gems are among the most valued treasures in royal and national museums. "Gems," says Hartley Coleridge, "always remind me of the enchanted rings and amulets of romances, of Gyges, and the Barmecides, and those marvellous crystals in whose translucent water necromancers beheld the face of things that are to be."

The earliest mention of engraving upon stones, as of carved figures, is to be found in Holy Writ. We are told, in the Book of Genesis, that Judah gave his signet and his bracelets to Tamar, and that Pharoah took his signet-ring from off his own hand and put it on that of Joseph. We are also informed in Exodus, that Moses was commanded to engrave the names of the children of Israel on two onyx stones, "with the work of an engraver in stone, like the engravings of a signet." To the Egyptians, who loaded their obelisks, the columns and walls of their palaces, temples, and tombs, with figures and hieroglyphic characters, the transition from tracing them on metals and precious stones was natural and easy. Their favourite productions in their commencement of this branch of art were stones cut in the form of the scarabeus, an insect venerated by them as the symbol of the sun, the principle of reproduction of all things, with attributes of their gods or heroes engraved upon the back. They regarded these stones as preservatives against disease and mischance; ornamented them with the images of their divinities, and the garments of their priests; bestowed

them as marks of honour upon the living, and endeavoured to impart their beneficial influence even to the dead, by placing them upon the bodies in the tomb.

After the Egyptians, we must look to the Etruscans for engraved gems; in which, as in sculpture, their first efforts were rude and stiff, as those of their predecessors. It is not however with the early efforts of this exquisite branch of art that we wish to detain our readers; we would rather introduce it at once to them as it existed in Greece at the same period when all the other arts attained their full perfection, that is to say, in the time of Alexander the Great.

The Greeks paid equal attention to the minute as to the colossal. Size was no criterion to them, in their scale of excellence; and, as in the world of nature, the wisdom and goodness of the Deity are as evident in the organization of an ant as in that of an elephant, so in the world of art they could display as much grandeur of thought and purity of design within the circlet of a ring, as in the decoration of their majestic temples, and stately porticoes. Hence it is that their engraved gems are still and ever will be considered as among the choicest treasures of antiquity. In them are presented to us every subject of god and hero, allegory, and emblem; religious, historical, poetical, or mystical, that comes within observation or tradition; to them the most precious stones, the emerald, the ruby, the amethyst, the chalcedon, the cornelian, the topaz, were consecrated; and in them, as Pliny admiringly says, "we see nature in all her majesty, condensed within narrow compass."—*Hic in unum coacta rerum naturæ majestas.*

Were it possible to collect in one cabinet a complete series of ancient gems, we should possess in fairy editions an entire and most comprehensive library of materials for the history of every thing connected with Greece and Rome, in their "most high and palmy state;" no wonder, then, that those which have actually come down to us should afford an incessant subject of inexhaustible gratifi-

cation to the poet and the artist, the historian and the philosopher.

The earliest Greek engraver of precious stones, whose name has been recorded, is Theodorus of Samos, who flourished 750 B.C. He engraved for Polycrates, tyrant of Samos, a lyre for his signet ring, upon an emerald of such value that it was deemed by its owner a fit offering to the marine deities, to propitiate the evils that he feared might be in store for him, to counterbalance the unmixed good fortune of his life up to that period. Accordingly, he threw it into the sea, as we are told by Herodotus; but according to that same graphic historian, he was not to be deprived of any thing he possessed; for lo! on sitting down to table, when a fish of extraordinary size and superior quality was served up to him, he beheld again in its stomach his own identical ring, which it had caught from his hand upon the surface of the wave.

The art of engraving upon gems was carried, as we have already remarked, to the highest perfection among the Greeks at the same time that they attained their utmost excellence in sculpture. The first devices upon them were simple, consisting of some single object, as the lyre, in the ring of Polycrates; or an animal, as the lion, which was worn by Pompey in a ring, out of compliment to Hercules, with whom he loved to claim affinity. But they soon came into request for portraits, of which the Greeks, as well as the Romans, were passionately fond, insomuch that few families of note were without statues of their relatives and friends. Alexander the Great was so exclusive on this point, that he allowed only one sculptor, Lysippus, to mould his statue; one painter, Apelles, to paint his portrait; and one engraver, Pryrgoteles, to engrave his likeness.

One of the most important features, however, connected with engraved gems, was the beautiful moral lessons inculcated in the mythological subjects they continually present—subjects in which modern eyes seldom discern anything beyond the mere outline of some fabulous incident, of

which they retain an imperfect recollection from their school days' learning; but to the mental view of those who looked deeper into them, they revealed truths equally beneficial for practice as for meditation. How, for instance, could an exhortation to temperance be given more pleasingly than it is conveyed in a fine sardonyx in the Orleans collection, showing the youthful Bacchus dancing hand-in-hand with three water-nymphs, in illustration of the caution observed by the wiser Greeks, the anti-Anacreonites, to mix three parts water with their wine, prettily alluded to by Ennius in an epigram thus rendered by Merrivale:—

“Tis young Bacchus' chiefest pleasure  
To move with Naiads three, in linked measure,  
’Tis then he is good company  
For sports, and loves, and decent jollity:  
But when alone, avoid his breath!  
He breathes not love but sleep—a sleep like death.”

But it would far exceed our limits to enter upon even the briefest view of half the interesting subjects and their important meanings, that are to be found in the engraved gems of Greece. Such was the magnificence and taste of the ancients, that they not only employed engraved gems for seals, rings, bracelets, armlets, ear-rings, necklaces, buckles, clasps and girdles, but ornamented their robes, and even their sandals with them. Nor did the warrior disdain to place them in his helmet, breast-plate, and buckler, the hilt and scabbard of his sword, nay, upon his saddle also and the trappings of his horse. Thousands and thousands of intaglios and cameos were set in the gold and silver cups, vases, and plates, which the rich and luxurious consecrated as ornaments of their sideboards, or which pride or bigotry deposited in the temples of their divinities. With a similar profusion, even large cups, goblets, vases, and urns were made of solid onyx, sardonyx, and rock crystal, externally ornamented with relieve work by great and eminent masters.

Calculation is astounded at the enormous expense and

the immense time and labour that must have been bestowed upon this branch of art. Some idea of it, though a very inadequate one, might have been formed, by the examination of a small cup of rock-crystal in the Crystal Palace, the setting of which, we were informed, had cost three hundred pounds; though undoubtedly the materials of which that setting is composed fall far below in actual value that of many of the *tazze*, which may be seen in the British Museum.

The art of engraving on precious stones gradually declined among the Romans from the time of Augustus to the beginning of the seventh century, when it disappeared entirely in the long night of barbarity and ignorance, justly designated by the appropriate term of the dark ages.

Michael Angelo, Raphael, the Carraccis, Poussin, and other celebrated painters, have borrowed largely from the gems of Greece: the sculptors the same. Some of Gibson's finest productions—and where can finer be found?—have originated in the ideas they have suggested to him. The Amazon defending her horse from the attack of a ferocious tiger, by Kiss, of Berlin, so much admired in the Crystal Palace, was taken from an antique gem; and the veiled figures of Tuscan (we will not say Austrian) workmanship, which excited equal wonder and admiration, were probably suggested by the exquisite gem by Tryphon, of the marriage of Cupid and Psyche, wherein the bridal pair are represented linked together by a chain of pearls, and covered with the nuptial veil, through which their features are seen in all the beauty of youth and innocence—a masterpiece of art, of which no imitation is to be found, save in the half-veiled head of Ptolemy Auletes, on a gem in the Orleans collection, and that of the Empress Sabina on another, formerly in the Crispi collection, at Ferrara. The art began to revive, however, in the fifteenth century, and its present state, in the skilful hands of such an artist as Girometti, of Rome, warrants us in the assertion that, although neglected for so

long a period, it now bids fair to emulate the high and well-merited reputation it anciently enjoyed. The artist we have just mentioned, we are informed, had prepared a magnificent sample of his skill for the late Great Exhibition; the difficulty, however, of finding a safe conveyance for so precious a gem, and his being prevented from visiting our shores himself, proved, unfortunately for the lovers of art, insurmountable obstacles to his design.

We have hitherto chiefly spoken of the art of cutting subjects on gems in *intaglio*, or indenting, a simpler and easier process than relieving the work from a ground; we will now make a few remarks upon the more elaborate mode of *relievo*, or relief. There has been much unsatisfactory discussion respecting the origin and exact meaning of the word *cameo*, or *camaieu*, as it is sometimes written. In the language of art, it is usually applied to gems or stones, and latterly to shells, that are worked in *relievo*; and strictly speaking, it refers to such stones only as have strata or grounds of different colours. It is impossible to describe works of this sort, containing so much fine detail, with sufficient accuracy to convey a just idea of their merits. They must be seen, and examined with care, to be properly appreciated; but it will not be amiss to notice a few of the most celebrated camei that are preserved in the museums of Europe. One of the finest is the Apotheosis of Augustus, in the collection at Vienna. It represents Augustus, his wife Livia, as Rome, accompanied by her family, with Neptune and Cybele; another is of an Imperial Eagle; also a Ptolemy and Arsinoe, &c. &c. In the French collection, the sardonyx of Tiberius is one of the best known: it exhibits the Apotheosis of Augustus, and the princes of the house of Tiberius; a Jupiter Ægioclus is a very fine specimen: to which may be added the Apotheosis of Germanicus, and one of Agrippina and Germanicus; with others, particularly some portraits of great interest. We possess in this country some camei of first-rate excellence, but they are chiefly in private collections.

The workers in cameo not only exercised their skill in the cutting or engraving, but also in so arranging their subject, and the composition of its details, as to make the different colours or zones of the stones answer for parts of the design; as, for example, in relieving fruit, flowers, or drapery in colour, while the other parts, as the flesh of a portrait or figure, were left white; or, cutting the subject entirely in white, and working no deeper into the stone than the first layer of colour, thus making, or rather leaving, a natural dark back-ground for the design. These irregularities are sometimes taken advantage of so skillfully, that it is very difficult to decide whether the variety is the effect of art, or really the natural colour of the stone.

The ancients so greatly admired this variously-coloured work, that they even imitated the material in glass, and we possess in this country a fine specimen of their skill in the Barberini or Portland Vase, in the British Museum, the execution of which is of the first quality. This celebrated vase was a few years ago purposely dashed to pieces by one of those lunatics who seek to gain notoriety by some great act of malevolent mischief. It has been, nevertheless, completely repaired, and restored to its original beauty.

The practice of working camei on shells, *conchyliæ*, is of comparatively modern introduction in Italy. It is now, however, particularly in Rome, practised with considerable success, and we may be allowed to hope it will be more practised by our own gem-engravers. The subject is worked in rilievo in the white or outer portion of the shell, while the inner surface, which is of a darkish hue, is left for the ground.

In the Roman department we observed several very good specimens of these camei, by Saulini, one of the best workers in that line of art.

## CHAPTER XV.

MOSAIC WORK — ITS HISTORY — ANCIENT MOSAICS — ROMAN MOSAICS — FLORENTINE MOSAICS — THE CHEVALIER BARBERI — STAINED AND PAINTED GLASS — MARECHAL AND GUGNON — CHANCE, BROTHERS, ETC. ETC.

MOSAICS are a kind of picture, executed with small pieces of glass or wood, pebbles, enamel, &c., fixed upon any given surface by means of mastic. Although this branch of art was well known and much practised by the ancients, Pliny has spoken of no express style, nor has he particularized any of the artists who wrought in it. We can only judge, therefore, by the appearance of antique relics of this kind, and by comparing them with modern performances, the method of executing which is known to us. When an artist commences a work in mosaic, he cuts in a stone plate a certain space, which he encircles with bands of iron. This space is covered with thick mastic, on which are laid, conformably to the particular design, the various substances meant to be used. During the whole of his work, the artist must have his eye constantly fixed on the picture which it is his object to copy. The mastic, in time, acquires the consistency of stone; it is susceptible of a polish like crystal. However, as the brilliancy thus acquired is injurious to the effect of the design itself, which is not clearly perceived through it, those mosaics which are applied to the adornment of cupolas, ceilings, &c., are generally less elaborately polished, the distance from which they are viewed preventing the spectator from detecting the inequalities of surface, or the interstices between the pieces of which the work is composed. The means have been discovered of giving to the colour of glass so many different shades, that it has been found to serve the purposes of all the various descriptions of painting. The artist in mosaic has all his various materials ranged before him in compartments, according

to their several tints, in much the same way as the printer arranges his different letters. To Pompeo Savini, of Urbino, has been attributed the art of executing mosaics in relievo.

The origin of mosaic-work must, apparently, be sought in the East, the rich carpets of which were imitated in hard stone. It is probable that the art was known to the Phœnicians, but to the Greeks its perfection and glory are to be attributed. From Greece it passed, with the other ornamental points of knowledge, into Rome, towards the end of the republic; the Italian conquerors of Greece transporting from that country into their own the most beautiful specimens in the shape of pavements, &c., which they could discover. Sylla was the first Roman who caused a piece of mosaic-work of any magnitude to be executed for the temple of Fortune at Præneste (now Palæstrina); which mosaic, at least a great portion of it, still exists. At first they ornamented in this manner the pavements of buildings merely, but after a while the walls and arched ceilings also. The tents of the generals, in time of war, were also paved thus, to keep off the humidity of the ground, as Suctonius reports of the tent of Julius Cæsar. The invention of coloured glass was a great discovery for the purposes of mosaic work.

When the dark ages had driven the elegant arts out of Italy, mosaic work, as well as painting and sculpture, was preserved a considerable time amongst the Byzanthian Greeks, who used it to adorn the altars of their churches. Towards the conclusion of the thirteenth century, an Italian of the name of Tafi learnt to work in mosaic of a Greek called Apollonius, who decorated the cathedral of St. Mark at Venice, where is still preserved an admirable pavement executed by him. But, in general, these works are wanting in design, are in bad taste, and equally bad in colouring. Since then the art has been brought in Italy to a very high degree of perfection. Pope Clement VIII., at the commencement of the seventeenth century, contributed much to this end by adorning in mosaic all the

interior part of the dome of St. Peter's. Among the earliest artists employed thereon were Paul Rossetti and Francis Zucchi.

One of the greatest advantages of mosaic is its power of resisting all those things which ordinarily affect the beauty of painting, and another the facility with which one can repolish it without at all hazarding the brightness and effect of the colouring. At the same time, as it can only be worked slowly, and requires great exertion, it can never come into such general use as painting: nor would it have attained the degree of perfection which it did at Rome and Florence, had not the respective governments of those two states made a point of encouraging it. Among the most beautiful mosaics preserved in the pavements or walls of ancient buildings, we may particularize that found in a chamber in Hadrian's villa, near Tivoli, and the Palæstrine mosaic, before alluded to, which is remarkable for the light which its delineations throw on the history, local and natural, of Egypt. In the villa Albani is also a beautiful mosaic discovered in the territory of Urbino, which represents a school of philosophers, and another depicting the history of Hesione, daughter of Priam. In 1763 was found, in a villa near Pompeii (probably that of the Emperor Claudius), a mosaic representing three females with comic masks, and playing on various instruments. The name of the artist (Dioscorides, of Samos), was engraven thereon in Greek letters. There are, besides, a very great number of others which have been at sundry times dug up, and which present a greater or less degree of beauty and of excellence in the art.

Among the mosaics exhibited in the Crystal Palace was a magnificent table, by the Chevalier Barberi, executed for the Emperor of Russia. In that style of art it was a work of consummate excellence. The principal cities of Italy contributed to form its border. Rome brought forward her glorious old Coliseum and her mighty dome of St. Peter's; Florence her Palazzo Vecchio, the old feudal residence of her former princes; Venice displayed her

church of St. Mark ; Milan her magnificent cathedral, that splendid wonder of Northern Italy, rearing its beautiful marble pinnacles of purest white towards the azure vault of heaven ; Genoa, *la Superba*, gave her ample port and her noble amphitheatre of hills ; Naples, its *pezzo de cielo caduto sul terra*, as its inhabitants term its glorious bay, over which Vesuvius reared its inauspicious head ; while Palermo, with her Duomo, completed the magic circle. The rich tone of colour, the accuracy of delineation, and the perfect finish that were found in this admirable work, could not have been surpassed by the delicacy of miniature oil painting ; so great, indeed, was its perfection, that the spectator might almost have required a microscopic examination to satisfy himself that the work of art before him was not the production of pencil and pigments, but of materials widely different.

There was another mosaic to which we would also direct attention, if it be not invidious to particularize where all were excellent of their kind ; but we mention it, partly because it was a copy of a *chef d'œuvre* of Italian art—Guercino's "John the Baptist"—and partly because it had been produced in the great parent school of Roman mosaic art, the studio of the Vatican. It was the work of Signor Raffaele Castellini. Although the *Studio de Mosaici* in the Vatican, which is maintained at great expense by the Papal government, chiefly for the purpose of decorating churches with mosaic copies of the masterpieces of Italian art, must be regarded as the great parent school, which has developed to its present state of perfection the art and mystery of mosaic working, there are, nevertheless, private establishments which produce works of great beauty for the decoration of mansions and palatial residences, and of these the mosaics in the Exhibition were beautiful specimens. Besides those already referred to, there were two handsome tables by Signor Boschetti, and others by Luigi and Domenico Moglia, presenting views of the Roman Forum, the Coliseum, the temples of Pæstum, &c., which stood the test of close inspection, being very

admirable works. Although the table above referred to, by the Chevalier Barberi—a name of European celebrity—was a most exquisite specimen, and well worthy of his fame, it is very much to be regretted that he had not been allowed to exhibit to the admiring eyes of all nations in the Crystal Palace a *chef d'œuvre* which he had just completed for the Emperor of Russia, and which he had been obliged to transmit immediately to St. Petersburg; viz., a large octagonal pavement, containing twenty-eight figures, the central piece being a colossal head of Medusa, and the whole being surrounded by a border of fruits and flowers. The design was copied on a reduced scale from an ancient pavement in one of the rooms of the Vatican museum; but it would be impossible for any one thing to surpass another to a greater degree than that to which Barberi's copy excels the original in drawing, colouring, and style of execution generally. He was aided in his work by his Russian pupils, who were placed in his studio by the Czar for the purpose of learning the art of mosaic decoration, with a view to founding a school of mosaic at St. Petersburg.

The improvements in the mechanical parts of the operation of mosaic painting which have been introduced by Barberi are so great, that a work which would require upwards of four years for its completion in the Vatican studio, can now be executed by him in less than a year and-a-half. A remarkable instance of this celerity of operation was recently manifested at his studio, where a copy in mosaic of the St. Nicholas in the church of St. Peter, was made in something less than two years, although a similar work at the Vatican occupied from four to five years. The pavement above referred to took three years and-a-half in its execution. But these are works on the grand scale, to which the mosaics in the Exhibition only bore the relation of miniatures to full-length paintings. The latter, however, were well calculated to impress on a mind hitherto unacquainted with mosaic works, a correct idea of this peculiar and beautiful branch of art.

The Florentine mosaics are very different in structure from the Roman, being composed of the most valuable marble, jasper, chalcedony, agate, lapis lazuli, &c., from which thin layers are cut out of such portions as can be made to represent leaves and flowers, in which form they are inlaid into a solid slab of black marble. This constitutes the ground; the pattern generally consists of wreaths of lilies, roses, vine leaves, or any other graceful or beautiful objects which require soft shades and delicate tints of colour. We have seen, at Florence, a table made in this manner, which was valued at several thousand pounds. And no wonder, for the pattern inlaid was of vine leaves exquisitely shaded, and the grapes were of rubies and amethysts. In the Pitti Palace, the residence of the Grand Duke, there are several of these splendid articles of furniture, fit adornments for so sumptuous and regal an abode. Its collection of pictures, too, is one of the most choice and faultless that is to be met with in all Italy.

The finest specimens of Florentine mosaic were, in all probability, too costly and too easily injured to be sent for mere exhibition, for the specimens that were to be seen in an apartment adjoining to the Roman were very inferior to what we had seen in Florence, where we spent nearly a whole day in the manufactory, inspecting at our leisure the whole process of cutting the marble, and placing the thin pieces which formed the pattern in their appropriate places in the slab. The specimens in the Exhibition, however, showed very distinctly the plan of the work, and there was one sprig of roses in the centre of a round table, which might have been mistaken for the most exquisite painting, and which was more rich and mellow in its effects than any that could be produced by the mere laying on of colour. Great use is made in this work of a kind of green marble, the soft shades of which are often so managed in the cutting out, as to represent the folding over of the edge of a leaf, or the light side of one resting upon the darker surface of another.

The landscapes in this style of art, of which there were two or three exhibited of a rather large size, we do not altogether consider as very successful. The materials employed are too untractable and rigid to admit of a free or graceful pencilling; neither in mosaic work, as in painting, can one hue be passed over another, to impart that rich transparency, or that aerial mistiness which is so beautiful in nature, and which the practised hand of a master, with all the appliances afforded him in a well-arranged palette, can alone hope to imitate. But in graceful and even elaborate representations of foliage, fruit, flowers, and ornamental work, such as may fitly adorn the chambers of royalty itself, it is that the art of the mosaicist displays its utmost beauty and perfection.

We will now for the present dismiss our mosaics, and take up the kindred subject of

#### STAINED AND PAINTED GLASS,

which in lengthened display extended its brilliant and kaleidoscope hues throughout the half of the upper gallery above the nave, and attracted a general and admiring notice. Few of those who visit either our own cathedrals, or inspect the interior of continental churches, ever think of investigating the merits, much less examining the subjects, of the

“ ———— Storied windows, richly dight,  
Casting a dim religious light,”

and which shed such a beautiful and mysterious glow over the structure. It was therefore a rare satisfaction to be enabled to scan closely the merits of those productions, whose principal claim to our attention was avowedly that of being an imitation of by-gone arts.

Although the art of staining glass is lost in antiquity, its adaptation to pictorial purposes is comparatively recent. Doubtless the mosaics of the Egyptians and Romans originally suggested the idea of transparent glass pictures; for, indeed, the earliest attempts were entirely composed of small pieces of glass of various colours united by thin

strips of lead, as may still be seen in old churches and cathedrals. The first records of pictorial glass work extant, date from about the year 800, in the days of Pope Leo III., when so many magnificent ecclesiastical edifices were erected, commenced, and designed.

Venice was chiefly famous for the manufacture of stained glass, the use of which was brought to high perfection with the pointed style of architecture in England. Fine specimens of the art may be seen in York Minster, the collegiate halls and chapels, and especially in the chapel of King's College, Cambridge. It is evident that the art of painting on glass may be divided into two perfectly distinct operations: firstly, the artistic design with reference to the capacities of the materials; secondly, the mechanical or rather chemical preparation and application of the materials themselves. Unlike most other descriptions of painting, in which vegetable as well as mineral colours are freely used, glass requires the exclusive use of mineral colours. The oxides of metals, such as gold, silver, cobalt, &c., are chiefly employed. These colours are, as it were, burnt into the glass. Some of them stain the whole substance, and are quite transparent; others mix with a substance called flux, and vitrify on the surface. These last are more or less opaque or semi-transparent, according to the mode in which they are applied.

Now, the ancients being more moderate in their demands on such a means, were more primitive, and perhaps more successful in their effects, whilst the moderns have progressed in an artistic point of view, but at the expense of the transparency, breadth, and simplicity of their ancestors. As a general rule, the modern paintings on glass are too much paintings in the strict sense of the word, too opaque in their shadows, and, in fact, too much shaded altogether. Whereas, painting on glass, to be really effective, should be almost entirely outline and colour, and as free from non-transparent, that is black shading as possible, for it must be remembered that all

non-transparent colour becomes mere neutral tint when opposed to light in a window, and that the depth of the tint is mainly regulated by its transparency; hence the somewhat muddy character of the majority of modern paintings on glass. Where, however, the nature of the material is sacrificed to real excellence in the design, we are inclined to make great allowances; but, unfortunately, either most manufacturers of stained glass grudge the expense of employing competent artists to draw for them, or artists of merit consider it beneath their dignity, or lastly, the patrons of the art themselves regard it in too mean a light, and do not offer an adequate remuneration for the production of such painting on glass in their churches, &c., as we should desire to see, and seeing, to admire. Yet there are plenty of young artists who would be glad to make coloured designs for glass windows for a very moderate remuneration, and who are perfectly capable of good composition, correct drawing, and judgment in the arrangement and distribution of the colours. Upon those more especially, who, from the spur given to the art by the late Exhibition, may speedily be called on to fulfil the above requirements, we would impress the following suggestions, which we venture with all humility to advance for the guidance of adventurers in a new or revived domain of pictorial creation. In the first place it must be borne in mind that a stained glass window is not a mere painting, but a means of admitting light, modified and tempered, it is true, but still light, into the building to which it pertains. Hence an additional reason for the all-importance of transparency in glass window-pictures. Secondly, it must be remembered that these pictures are generally seen at a considerable distance; therefore, the boldness, breadth, and above all, the harmony of the effect is far more vital to its success than any minuteness of detail. Thirdly, it must be invariably present to the mind of the artist that he is not producing a work for isolated exhibition, but is labouring in combination with the architect of the edifice which his design

is to adorn, and with which it is expected to fall in and harmonize—not to jar and contrast by painful and violent uses of light and shadow, such as, we are sorry to say, the late collection very plentifully offered. Actual white and black (that is, opaque shadow) ought to be almost entirely excluded from works of this kind. In a word, the window ought never to lose for an instant its character as a window, that is, an admitter of light, which is its absolute and æsthetic relation to the walls, columns, and domes of the building it illuminates.

It is certain that the practical art of staining glass, which flourished in such perfection during the thirteenth century, has been in a great measure lost, and, notwithstanding all the efforts of modern chemistry to equal and surpass it in purity and brilliancy of colour, it remains unrivalled. On the other hand, painting on glass, when carried out by artists such as form the exceptions to the strictures above made, is decidedly pushed much further than in former times, as far as mere pictorial excellence is concerned. Whether it has advanced in its legitimate mission, that of an harmonious adjunct to architectural effect, we doubt. A new era has, however, commenced in the art, and we must take it as we find it, merely considering its merits with reference to the object intended to be attained, and not criticising it according to any abstract causes of glass window-painting, which, right or wrong, may form a part of our artistic conscience.

In proceeding to notice the works in this department displayed in the Great Exhibition, we would premise that we are not amongst the devotees to this mode of decoration as a vehicle for high art; and consequently, must be prepared to view the various candidates as copyists of the art as developed at the early period when it was in vogue. The following observations therefore will be considered to be written with a feeling for “mediævalism.”

As a general fact, we have to admit, that the English glass-stainers did not take the first rank in this branch of national competition. On taking a first and cursory view

of the long range of stained glass windows and medallions in the northern galleries of the Exhibition, our attention was forcibly arrested by the striking works of MM. Marechal and Gugnion, of Metz, which, in almost every requisite quality, artistic composition, harmony of colour, and mechanical execution, excelled all the productions of their competitors. In the "Portrait of a Bourgemestre," the richness of the dark yet transparent drapery was very remarkable. Perhaps the head was a little too bright a contrast to the deep background and dress. But in the large painting at its side no such defect was visible. "St. Charles Borromeo giving the Sacrament to the Victims of the Plague," was remarkable as a restoration of mediæval life and sentiment. The drawing of the figures, rude and unsatisfactory, *per se*, was combined with a devotional sincerity in the expression and attitudes, and a local historical truth in the peculiar cast of feature, which denoted the revival of an obsolete art in a kindred spirit. The blue sky in the background admirably relieved the warm group of earnest figures in front, and the colouring was of a beauty which reminded one of the early Italian painters. Nor was it in pictorial effect and drawing only that Marechal of Metz excelled. His medallion of the thirteenth century style was an excellent specimen of colour and design. It harmonized with the rest of his paintings, and though simple in its outlines and its colours, it was rich both in chromatic harmony and general effect. Marechal is, in fact, the one great glass painter and stainer of the present day in Europe. His works have been long known and appreciated in France as the first in that line of art. His paintings in the windows of the church of St. Paul, at Paris, which were furnished some years ago, raised him at once above all his competitors in France, both as a glass-stainer and an artist. Without dwelling on the minute gradations of merit in other glass-stainers and painters, we now pass on to a general examination of the works most worthy of attention in the late collection.

Messrs. Chance, Brothers, of Birmingham, exhibited a variety of paintings, amongst which we noticed a Virgin in a green robe, well contrasted with some rich crimson drapery. There was much breadth and simplicity about this figure. We also observed a landscape, which would have been very well, but for the excess of green in the arrangement of its colour. And here we may pause to mention a very curious fact as to the glass paintings exhibited, viz., that each manufacturer or artist seemed to have a peculiar love for one particular colour, in the production of which he succeeded better than in others. Thus Messrs. Chance's greens were pre-eminent for brightness and transparency; whilst, as we shall presently have occasion to remark, other glass-stainers excelled in other colours, and affected them more exclusively.

Mr. Edward Baillie exhibited a painting of "Queen Elizabeth listening to the reading of Shakspeare," which surpassed all his rivals in the violent contrast of its lights and shadows, and in the impenetrable opacity of the latter. We cannot say much for the faces or drawing in this group. However, the Queen's white satin robe was very brilliant; and the carpet was really so well executed, that we could have wished the remainder of the picture up to the same level. Mr. W. Wailes was enterprising in design, and displayed considerable brilliance of colour and transparency, but there was a rudeness and harshness about the paintings which was not pleasing. The St. Helen's Crown, Sheet, and Plate-glass Company sent a large painting of "St. Michael and Satan," in which the tail of the arch-enemy was prolonged to an indefinite degree. There was some spirit in the drawing, but the execution was lamentable in every respect. Some lions and unicorns by Tobay, the former yellow, and the latter white, were not very wonderful productions, nor in any respect likely to outshine the ordinary lions and unicorns of every-day life.

Messrs. Hetley and Co., of Soho-square, sent a very fine painting of the "Ascension." In this work the rich

colour in the foreground contrasted well with the lightly managed atmosphere, against which the figure of the Saviour was seen in a glory very spiritually conceived and executed. M. P. Lafaye was doubly unfortunate in being placed by the side of Marechal, to whose works his specimens served as a foil. They were muddy in colour, and very inferior in design. Henri Fougue sent some curious specimens of mezzotinto transparencies, produced by glass or china, carved or modelled so as to produce the different gradations of light, shade, and tone, in a manner remarkable for its softness and purity of effect. M. Thibaut Dallet had a very brown monk, effectively drawn, but deficient in transparency. His "Judith and Holofernes" was a fierce piece, of strong expression, and somewhat crude but rich effect. Red is evidently the predominating and favourite colour with this artist. The "Lord's Supper" was more transparent, but with little merit either in design or colour. Herr Geyling, of Vienna, had a female figure leaning on a window-sill, which resembled an oil-painting in effect. The flesh of the face and hands, and the white chemise, as well as the dress, were well executed; but the opaque background was objectionable. As a work of art it reminded one, on the whole, of Jullien's coloured lithographs. We consider this a strong example of success in a line which ought never to be attempted by a glass-stainer.

M. Thevenot was chiefly noticeable for a blue turn of mind in his colouring. He had, however, some very tolerable saints on pedestals, which were edged with gold, most effectively rendered by transparent yellow glazing. His "Radecona" was a severe figure, with much depth and richness, yet too opaque for real brilliancy of effect. The small Gothic window, by M. Martin of Troyes, was remarkable as a quaint imitation of the old style, as regards artistic treatment and brilliancy of colour. Upon these grounds, it was one of the most curious specimens in the Exhibition to lovers of the ancient glass stainers and their peculiar characteristics.

The painted window by Mr. Gibson, of Newcastle, contained subjects illustrative of various passages in the life of St. Peter. It was in the Norman style, and consisted of six geometrical forms upon a richly ornamented ruby background, embodying the principal events from the apostle's life. The centre medallion was Christ's charge to Peter; the others respectively contained the Angel delivering Peter from prison; Peter denying Christ; Christ calling Peter from the ship; Peter's want of faith; and in a small quatrefoil was the martyrdom of St. Peter; the whole surrounded by an elaborately worked and richly coloured border. The colours of the glass were rich and full-toned, and judiciously combined. It is a subject for regret, however, that, in reviving this ancient art, as a medium, it should be considered necessary to imitate the barbarous style of drawing of the Gothic ages.

We have thus glanced at a few of the most meritorious, or rather, to speak conscientiously, of the least sinning, amongst the exhibitors in the stained glass gallery. On a future occasion we shall return to the subject, when we shall give some account of Bertini's famous Dante window. Before taking leave of this subject, we would draw this general conclusion from the examples we have been examining. We would once more impress upon the improver and enterpriser in this branch of decoration, that simplicity, transparency, and moderation in light and shade, are the three great requisites after harmony of colour.

## CHAPTER XVI.

AN EARLY MORNING VISIT—A NOON-DAY STROLL—PEACEFUL  
CROWDS—PLEASING ADMIXTURE OF RANK—A GREAT DAY AT  
THE CRYSTAL PALACE—BRITISH HOSPITALITY—ENTERTAIN-  
MENT IN GUILDHALL TO THE QUEEN.

WE will now, for a short period, dismiss all particular criticism on the various productions of human industry and genius, and indulge in a retrospect of one of those calm and quiet days, which were frequently devoted by the assiduous visitor, satiated with curious examination, to a general and leisurely observation of what was passing in the busy microcosm around him.

Our readers must be informed that it was the privilege of the "writers for the press" to wander unrestricted through the avenues of the glorious Crystal Palace, long before the general public were admitted—a privilege shared only with industrious exhibitors' attendants, and sundry busy gentlemen in red coats, known as sappers and miners. From one of these favoured votaries of the quill we are indebted for the following graphic description of its appearance at "early dawn," and the feelings it was calculated to awaken in the reflective mind. "It is scarcely possible," observes our writer, "for those who have not visited the wonderful Glass House, to conceive the curious effect its vast size and exquisite perspective have upon the mind. Its solitary grandeur at this hour can be likened to nothing of which we have hitherto had experience. It was like a forest in its stillness, but the songs of birds or hum of bees greeted not the listening ear—it was like a cathedral in its vastness and solemnity, but no masonic pillars, or heavy sculptured walls were there to break the light, and give the 'dim religious' air, so potent in its grandeur—it was like a fairy palace, in which a hundred thousand sleepers might have dozed away their lives, but that we knew it to be filled with the

works of men's hands—it was like a dream of beauty, and light, and power, but that a passing footstep awakened us up to reality and life—it was like—like nothing but itself, unsurpassable, indescribable, unique, amazing, real!

“The sun broke out, and added new beauty to the painted line of girder and column stretching far away. We gazed upward in never-tiring wonder and admiration, and caught new glimpses of beauty in the glass roof of the beautiful transept, tinted with all the colours of the rainbow. We looked around, and found the light reflected in glass and silver and bubbling water—for the hour was passing, and the hitherto silent fountains had begun to play. \* \* \* \* \*

“Day had fairly set in, and where a solitary visitor was erstwhile standing, little knots had gathered; little knots, which, as the clock struck TEN, had become groups, which speedily swelled into assemblages, which presently became inconveniently close, and were at length a mass, a crowd, a mighty peace meeting. A throng, indeed; but there was wonder, and pleasure, and kindness on every face. We stood a minute in the corner of the gallery, beneath the ladies' carpet, and gazed upon the well-known spectacle. The sight of thousands in the Glass Palace was one worth seeing indeed,—for where the million is, there is love, and hope, and human passion. O, amazing thought! The GREAT GOD was in the midst!”

The interior of the Crystal Palace had now assumed that state of pictorial completeness in which it remained during the whole summer. Nothing more seemed wanting to it. Each day had added something to its picture, as well as to its uses; and we were never weary of repeating how in this wondrous edifice all had been so successfully contrived that every sense was satisfied. At every turn the eye was fed with beauty. In the fervid mid-day hours a delicious coolness filled the atmosphere. The low plash of falling fountains sent whisperings through the cars that were like sounds heard in a dream. Even the sounds which in ordinary buildings would produce discords,

between the walls and under the roof of crystal combined into a strange and palpitating music. Few things in the mighty edifice were more remarkable than this effect. Great as was the daily concourse of people, the hum of voices seldom rose above the deep and trembling monotone produced by conversation in the open air. The talk of the fountains and the tones of minor musical instruments died on the ear at the shortest distance. The organ notes rolled but faintly down the naves, as they would have done along a line of forest trees,—the high swell and cadence falling gently on the unresisting medium in which they passed away. Even the click and whizz and whirl of machinery did not strike the ear with that sharp and semi-painful effect produced by them in close brick buildings. There were no echoes, reverberations, arrested or broken sounds. The noises passed away through the glass roof as freely as the light and sunshine entered by it.

Our holiday-makers from the country—the tens of thousands who poured into London from every great town of industrial England, were amongst the first to see the palace in its perfected beauty. The peasant's shilling in June returned him more than the peer's guinea did to him in May. Russia was then shut up in her frozen rivers,—Tunis had not quitted her burning sands,—Hindustan was out at sea,—France in great measure lay in her packing-cases,—America had barely stretched her limbs in her vast spaces,—Turkey was but preparing to transport herself from the Bosphorus,—Persia, for aught that could be ascertained to the contrary, was still in the heart of Asia. All these guests subsequently arrived. From China to Peru, from Norway to Arabia, the products, the art, the genius of all civilized nations, were at length in London. One nationality only was here unknown by name:—Naples furnished nothing to the industry of the world but a band of spies and secret police. The contribution was characteristic. Henceforth Naples is blotted from the list of civilized states.

The company assembled in the Crystal Palace day after day was scarcely less interesting than the collection of articles. During the whole of May the number of foreign visitors was comparatively low. Where were the Germans, Americans, French, Italians, and other strangers?—was a question on every lip. They were not there. The passenger traffic across the Channel did not visibly increase. The artistic fancies which in multiplied prints had filled the parks and thoroughfares of the West-end with Spanish mantles, Turkish robes, Greek tunics, and other gorgeous dresses, seemed to have had no foundation in reality. A few days, however, rapidly developed this picturesque feature. The scarlet-robed Tunisian was not the only wearer of a bright costume in the Crystal Palace. The Andalusian cloak, the French blouse, the slouched hat of the Rhine, the turban of the East, the scull-cap of the Morea, and several other varieties of human envelopment might be seen there. It was curious and interesting to notice the wonder and delight of the wearers of these foreign garbs at all they saw and learned. Nothing, however, seemed to strike these strangers so much as the building itself,—so marvellously new, graceful, and imposing,—erected in a space of time so incredibly short, and with casualties so remarkably few for so vast a work. Next to this, the cotton and flax machinery seemed to fill them with most wonder. The rapid increase of provincial visitors was still more remarkable. Agricultural implements, during the first month of the Exhibition hardly glanced at, now obtained a large share of attention from scientific and practical men. The Essex or Devonshire farmer, somewhat impatient of mediæval courts, chiselled marbles, and Byzantine mosaics, might be seen diligently studying the last hints and improvements in ploughs, spades, harrows, carts, flails, threshers, clod-breakers, and so on. The Lancashire mechanic might be found intently poring over some new contrivance of a London machinist,—the Yorkshire wool-grower busy with comparisons between the produce of the merinoes of Saxony

and of Spain. A very visible change was observable in the aspect of the area. There was a strong determination of visitors to the transept,—that being the centre and the point of intersection; but a more general distribution of company over the galleries and recesses was obvious at a glance. The holders of season tickets were probably, for the most part, persons to whom the æsthetics of the place, its artistic arrangement, its beauty and satisfaction to the outward sense, were the chief attractions. To these it was first and foremost a lounge and a panorama unequalled for comfort, splendour and variety. For the details which occurred beyond the first reach of the eye, and which did not form a striking part of the spectacle as seen from any favourite point of view, many of these visitors cared little. The naves, the transept, and the front galleries—the points from which the pictorial effects could be best taken, and the artist-sense most completely gratified—were the positions chiefly frequented by them. But visitors from the country towns and hamlets, from workshop and farm, seemed to have a different object in view. Less sensible perhaps to the grace and beauty which came out in gleams of light and gushes of melody at every turn, they appeared to set themselves more resolutely to study the particular construction and contrivances which had for them a practical interest. This was very noticeable with the artizan, both English and foreign. The blouses of Brussels and Paris seemed to examine with intense curiosity the work in precious metals exhibited by the great London houses.

Education of eye and mind was going on at a thousand points at the same moment, directly and indirectly, —formally and informally—by example, suggestion, and illustration. It did not seem to us that even what were called the “idlers” of the Crystal Palace were altogether idle there. If they did not appear to examine minerals, compare the merits of rival ploughs, or pay much attention to the wool and cotton fabrics of the western nave, it would be a great mistake to suppose that their time necessarily passed away unimproved. The morals of the Palace

did not all lie in its details. There is an education of the taste, a cultivation of that love of beauty which every one possesses in a greater or less degree, which may be more important in some cases than the acquisition of special knowledge. The most listless loungeur in the Exhibition was there at school. Consciously or unconsciously, he received at every sense lessons which cannot be altogether without effect in after life. The apparent idler might undervalue neither the edifice nor its contents; he might wish only to enjoy them both in his own way. Some minds cannot endure particulars. The poetic imagination loves to take in the whole at a glance—to embrace the grand synthesis by a single effort—not caring to stay its action until it may find time to analyze and separate the component elements of the picture. In such an edifice, Shakspeare or Raffaele, though a thousand things would have arrested them at last, would probably not have descended to the examination of details for many a day.

Contrary to prognostication, the shilling people passed through the building without disorder. There was no crowd the first day, no *émeute* in Hyde Park, no cry for soldiers and police. The Palace did not come down like a house of cards. The aristocracy did not cease their visits because the hard-workers chanced to come “between the wind and their nobility.” It was in this respect a very satisfactory circumstance to find that, along with the royal family, eight or ten thousand season tickets went in every shilling day—to see so many coronetted vehicles making their way through crowds of omnibuses to the doors—to observe how completely all social distinctions were for the moment merged in the general feeling of pride and admiration at the wondrous result of science and labour exhibited in the Palace of Glass. Never before in England had there been so free and general a mixture of classes as under that roof, and good results of many kinds it is to be expected will grow out of it in the future. Another circumstance surprised the would-be prophets. Instead of the artisans staying in the Crystal Palace all day long,

as was expected, it was found that the shilling visitors remained on an average little more than half the time of the season-ticket visitors. Nor were the artizans, or the agricultural population, the only privileged persons among the lower orders who were gratified with a sight of the World's Fair. The Duke of Wellington having been from the first one of the most assiduous visitors of the Crystal Palace, bethought himself how the regiments under his command might enjoy the same satisfaction. For this purpose leave of absence was given by the commander-in-chief to all regiments at home, from the 1st of June to the 30th; one field-officer, half the captains, and half the subalterns to be allowed the indulgence each fortnight in the month. In the same spirit, the Admiralty gave leave to the officials of the royal dockyards to absent themselves under certain regulations; and the orders in which this permission was conveyed, at the same time announced that the officers visiting the Great Exhibition were expected to report to their respective superintendents any new invention in machinery, or improvements in articles in general use, tools, &c., that might attract their attention, or anything that might strike them as useful or advantageous to the public service. The order issued to the workmen of Portsmouth Dockyard, gave notice that the period of leave to be granted to them for the purpose of visiting the Exhibition was to be extended to six days—the first half of the workmen to proceed to London on her Majesty's birthday, returning on the Friday following; and the second half to proceed on the anniversary of her Majesty's coronation. The admiral intimated to the men, that in case the fares of the railway were not reduced to what might be considered a low figure, he would place a vessel at their disposal for the purpose of conveying them to the metropolis.

As early as the 18th of June the human tide began steadily to increase in its mighty flow towards the Crystal Palace, an account of which day, although far inferior in point of accumulated masses to many that followed, we

shall forthwith present to our readers. Notwithstanding the fluctuating character of the weather, the visitors began to pour in at an early hour, so that at two o'clock the interior might be literally called the World's Fair. The great increase of country visitors was becoming quite noticeable; and the foreigners, who formed a large ingredient in the company, were no longer exclusively of the stronger sex. French and German might be heard resounding through the building with a volubility which bearded lips would in vain strive to arrive at. From the subjoined figures it will be seen that the great body of visitors came between the hours of ten and two o'clock, and there was a fair presumption that those were the hours at which the provincial contingents would arrive. The three o'clock return gave the steady ticket-holders who came day by day, and examined the wonders, section by section, a task which was sadly interrupted; while the later hours' returns might be supposed to indicate the mere loungers who promenaded the nave or sat about the crystal fountain; and they, most of all, were incommoded by the myriads who came for the vulgar purpose of seeing and being instructed by the Exhibition. The numbers at the last return taken were 62,532, being nearly 5,000 less than the return of the previous day, but considerably beyond any preceding day's work, and the following was their order of arrival:—Eleven o'clock, 18,637; twelve o'clock, 17,715; one o'clock, 10,315; two o'clock, 5,913; three o'clock, 4,423; four o'clock, 3,366; five o'clock, 1,476; and six o'clock, 687: total, 62,532. At a quarter to seven the bell rang, and in an inconceivably short space of time the building was left to the tranquil possession of its nightly guardians. This process of clearing out was not the least remarkable feature of the Exhibition. Great military authorities had said that it would be easy to collect 60,000 people in Hyde Park, but not so easy to get them out again; but at the Crystal Palace the problem was solved every day without any coercive means, save the inherent orderliness and good feeling of the people.

There was no rushing, no noise, no confusion. The tide receded as gradually as it had advanced, and the only trouble the police had was to control the curiosity of the ladies about the diamonds, and to make abstruse arithmetical calculations touching the ingress and egress. This admirable order, too, it must be observed, was the spontaneous result of an undertaking of which all manner of evil had been predicted, and, we may conclude, wished too, after the manner of prophets in general, according to the pithy remark of Dean Swift—

“They'd rather far that you should die,  
Than their prediction prove a lie.”

Nay, one wiseacre actually took the trouble to write a pamphlet under the title of *To-morrow*,—that the Great Industrial Exhibition was only the revival of its ante-type, the Tower of Babel, which was certain to realize in its effects the confusion of that never-finished structure to which we owe so many different tongues, known and unknown, “the crash of Samson, the prostration of Dagon, the division of Solomon's kingdom, the handwriting on the wall, visible to all eyes, but comprehended by only one mind”—that one of course the author's.

In the meanwhile everything was done to do honour to the nation's guests by our willing countrymen. Besides a multitude of private hospitalities, dispensed with a heartiness that put the character for “pride and coldness,” by which we have been generally known abroad, somewhat in peril. Concerts and receptions at the Palace, *soirees* at the rooms of the Society of Arts, entertainments at the Guildhall, dinners at Soyer's Symposium, public breakfasts at the Inns of Court, evening parties at the meeting-places of the learned societies, followed each other in rapid succession. Peace was on every lip—welcome in every eye. To a degree that was scarcely conceivable before, we laid aside our insular airs, and became cosmopolitan under the mighty influence of the deed that we had accomplished. Like Pygmalion, we were inspired by our own work. Nor was this the only result. That

which brought courtesy to the stranger, also brought calm to the house. Every unpleasant subject was kept down by the accumulating interest attached to the Festival of Industry. Politics were forgotten in the general excitement, and the demon of religious dissension, which had so long haunted with its presence so many firesides in the metropolis, seemed to have vanished into thin air. Sculptors and artists entertained their continental brethren, and sent them back to their own countries crowned with fresh laurels. Nor, while the manifestations of jubilee appeared in the higher circles of society, did the world of artisans allow the occasion to pass by without contributing its share to the general fund of hilarity. The overseers and chief workmen employed by the contractors of the Crystal Palace proposed to give a solid English dinner of roast beef and plum-pudding to the foreign artisans employed in arranging the contents of their several countries.

The crowning act of demonstration, however, took place about the middle of the season, when a grand civic entertainment to celebrate the successful results of the Great Exhibition of the Industry of all Nations, was given in Guildhall to her Majesty, Prince Albert, and the Royal Commissioners, on the ninth of July.

To say that the streets were crowded by loyal and enthusiastic thousands; that the windows and the housetops all along the line of procession, from Buckingham palace to Cheapside, presented seas of pleasant faces; that the illuminations in the city were grand, brilliant, and appropriate; that gay flags and banners waved across the streets; that her Majesty and the Prince were received by the multitude, as only a beloved queen could be; that the carriages made their way through dense crowds of enthusiastic people—a body-guard, brave, loyal, and true—cheered and welcomed with true British fervour; that on the arrival at the ancient Gothic hall, the august party were received with all honour by the first man in the city; that the procession of the queen through living walls of loving subjects was the great event of the

evening; that thousands bent the willing knee to royalty; that the old crypt, made gay and beautiful for the occasion, was honoured for the first time by the presence of the queen; that a ball afterwards took place in the Guildhall—one of the finest rooms in Europe unsupported by pillars; that the grand preparations which the citizens had made were worthy of their ancient fame for hospitality; that in that noble hall stood the representatives of almost every civilized nation under heaven; that the whole passed off with the greatest *eclat*; and that loyal crowds waited in the streets till long past midnight to escort their queen home again when all was over: to say all this, was only to repeat what was already familiar to every man, woman, and child in the three kingdoms.

But some other considerations arose out of this royal visit; some other thoughts came uppermost on reviewing the events of that auspicious evening. Of themselves, the royal procession and the civic entertainment were but gaudy pageants, in which soldiers and horses, and gas-lights, and crowds, and well-dressed people, and notable foreigners took part; but viewed in connexion with the purpose for which the fête was held, it became a direct recognition of the claims of labour on the part of the highest personages in the realm, or indeed in the world. The royal visit to the city was an event of which we, as a nation, had reason to be proud; for of all the thousands whose productions filled the great Industrial Bazaar in Hyde Park, there was not one who might not have been said to have been represented in the Guildhall on the ninth of July. In the principal city of the civilized world the queen and her husband acknowledged, by their presence, their infinite obligations to the industrious classes. Both within and without the noble hall there was much to teach and interest our foreign guests and neighbours. "In the spectacle of the day," said an eloquent writer, "might be discovered a fair representation of that constitution and those institutions by the gradual growth of which Britain is what she is, while

France and Germany are—what she is not. In the queenly yet domestic bearing of her Majesty, all might see what Britons love to see—that their sovereign is not only their queen, but the first matron and lady of the land: in the crowded yet peaceful streets of our capital many a smaller city of the continent be taught that there are other safeguards for the sovereign and the public peace, than bayonets, and other *vivats* more hearty than the simulated plaudits of a people ruled by fear and force. And, above all, we trust it is in no sanctimonious or self-righteous spirit that we express some confidence that it will be long before, as a great city of trade, we forget that lesson which we have inscribed permanently on marble, and on that night in letters of fire, above the portals of the Royal Exchange—"The earth is the Lord's and the fulness thereof."

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## CHAPTER XVII.

### FOREIGN AND COLONIAL DEPARTMENTS—*continued.*

THE ZOLLVEREIN—ARTICLES OF FOOD AND CLOTHING—ARMS, CUTLERY, ETC.—FURNITURE, WALKING STICKS—CROCKERY—MACHINERY—OBJECTS OF VIRTU—STUFFED ANIMALS.

It is now, however, time that we should continue our examination of the "Foreign and Colonial Departments." We will accordingly direct our steps towards Germany; and, in the first place, we beg pardon of our friends in that quarter for any apparent neglect they may imagine we have been guilty of, in not noticing them at an earlier period. In the selection of the objects to which we have invited the attention of our readers, we have not been solicitous to follow any rigid systematic arrangement; fancy and freedom, as we believe we have already stated would be the case, have been our guides in our various wanderings

through the interminable mazes of the Palace, and we shall still continue our researches under their immediate influence and direction.

Our readers are probably aware that the Zollverein—a name which occupied a large portion of the foreign side of the Crystal Palace—is not that of any individual country. On the contrary, it designates a union of several states of Germany, under one common custom-house law, indicated in the term zoll (*duty*), verein (*union*)—a policy, not a country, which brings under one series of fiscal regulations, concerning import and export duties, the subjects of several states of Germany, having in other respects different laws, and lying widely apart. It embraces Prussia, Saxony, Wurtemberg, Bavaria, Baden, Nassau, the two Hesses, and all the minor states of the centre of Germany, and comprehends altogether somewhere about 26,000,000 people. Hanover, Brunswick, Oldenburgh, Bremen, Lubeck, Mecklenburgh, on the north; Bohemia, Austria Proper and other German dominions of Austria, on the south, are not members of this union. Prior to its being formed, the thirty-seven states, large and small, into which Germany was divided, levied each its own duties and tolls on rivers and roads, and had its own custom-house officers to levy them. As the rule, no goods could be transmitted through any one of these states to another, or sent from one state to another, without being subject to all the vexatious delay of a custom-house examination at the boundaries of every state. The actual facts were still worse, for many noblemen and cities levied, till a very recent period, private tolls, and at their “bars” all goods were liable to a similar examination. The annoyance of this system, to say nothing of the accompanying annoyance of passports, which still continues, was immense, and far exceeded anything of which our people, long united under one government, and having amongst themselves internally a perfectly free communication, have ever practically had to form any conception of. To get rid of some of these vexations, the states above mentioned, under the

influence of Prussia, united themselves commercially about twenty years ago into one body, abolishing all intermediate tolls and customs duties, and levying only duties common to all, at the one extreme boundary of the confederating states, and dividing the revenue accruing among the different states composing the union, in proportion to their size, population, consumption, previous revenue, &c. All states not comprised in the union, and preserving their own revenue laws, are, so far as trade and customs duties are concerned, considered foreigners. The reader will see, therefore, that the name Zollverein in the Exhibition was a mere political designation for a great part of Germany, separating it from Northern Germany on the one hand, and from the Austrian dominions on the other; and such products of the industry of the 26,000,000 people comprised in this Customs Union as they were pleased to exhibit, it is now our intention to describe.

The department of the Zollverein was in the eastern part of the Crystal Palace, approximating towards the centre. It extended on both sides of the nave into the galleries, as well as on the ground-floor, having Russia on the east, and Austria on the west. Intermingled with it, however, was the space appropriated to Northern Germany, an arrangement justified by the geographical relations of the two, but at variance with the political designations, and which became the cause of some confusion. In truth, disorder in arrangement, singularly enough for the methodical Germans, seems to us to have characterised their part of the Exhibition. Although Wurtemberg, Saxony, and Bavaria, had distinct exhibition rooms on the south side of the nave, in which to display their cloths and shawls and stockings, in the grand centre hall of the Zollverein on the north, some of their most distinguished products, and the most distinguished products of the other states, were mingled with the products of Prussia, which disabled us from forming a just appreciation of the industry of the separate people, or of the whole Zollverein. In the medley, we could not compare

and contrast what had been done by the lively, vain, egotistical, and royal Prussian, with the productions of the more solid and somewhat duller Hessian; nor could we conveniently distinguish between the industry which is rooted on the Iser, and that which flourishes on the Elbe or the Rhine.

For the above reasons the general remarks which follow will apply in a great measure to the industry of all the Germans, not excluding even the Austrians, though we shall describe separately the Austrian part of the Exhibition; and we must, therefore, make our readers fully aware of the number of people to whom they apply. The Zollverein comprises about 26,000,000; Northern Germany, about 4,000,000; and Austrian Germany, about 7,000,000. The tracts of land inhabited by these people extend from the Baltic to the Iser and the Rhine, from the German Ocean to the Carpathian Alps, and embraces a great variety of soil-surface and climate. It is rich in minerals and raw products, and is traversed by numerous large rivers. It is the best and principal part of central Europe. For such a country and such a people, the exhibition of their industry struck us as comparatively poor and comparatively uniform. There was a sameness in it throughout, not met with in any other part of the Exhibition, of equal pretensions.

In one great natural quality Germany is deficient, and the want of it has been much aggravated, instead of being relieved, by the policy of its governments. It has comparatively a small extent of sea-coast. Denmark and Holland shut it out from a direct connexion and communication with two parts of the ocean. It has had, therefore, in relation to other states, a small and not fast-growing foreign trade. The many small states into which it was divided, and the absurd fiscal regulations in each, added to the want of ocean communication, till very modern times, limited and hampered its internal traffic. The consequence was, that the subjects of each state were pretty much confined to their own products for subsis-

tence ; and comparatively little separation of employments, or little division of labour ensued, and, as a consequence, little variety in the industry of the people. The Germans rather pride themselves on the circumstance, that division of labour is not extensive amongst them—that they are what they call many-handed ; but that is only an approach to barbarism, when every individual provided by his own means for all his wants. To satisfy the common demands for food and clothing they all necessarily adopted the same or similar arts ; and the same causes continuing to prevent the separation of employments, they have continued the same or similar practices. In conjunction with this, too, the respective governments undertook to a degree unknown in England to guide the industry of their subjects ; and as they were generally actuated by a similar policy, and had similar objects to attain, they generally directed the industry of the people in similar paths.

After the wants of food and clothing were supplied, the great object of the different governments, besides the common desire of military power, was to have luxuries provided for courts, which for a long period borrowed their ideas of luxury from the French court as a common model. Accordingly, as you passed amidst apartments hung full of cloth and of damasked linen, with a profusion of swords and cutlery, walking-sticks, pipes, buttons, and common tools, models of old castles or modern residences, with some fine porcelain, some exquisitely carved ivory, some delicate bronzes, and some admirably stained glass, you found a great uniformity in the products of numerous distinct and different people, for which you were hardly prepared ; nor was the impression removed by the appearance of some well prepared leather for different purposes, some valuable mineral and other raw products, several specimens of wool, and some splendid crystals and colours, the result of chemical arts, and a little well-wrought furniture. What is called Berlin-wool, raised carpeting scarcely fit to walk on, models of

castles, dried fruits, a multitude of ornaments in cast iron, an abundance of toys, playing cards, much ordinary jewellery, piles of stockings and suspenders, with a few printed books, completed the miscellaneous assortment.

Many of the articles would excite surprise in any exhibition, but we were chiefly astonished to find them so many leagues away from the place where they were made. The Germans supposed they were to sell, as well as to exhibit; they looked on the Exhibition as a market, and thought that the cheapness of their hose, their cutlery, their common tools, and their cloth, would ensure them numerous customers. In fact, many of their articles had been exhibited avowedly only on account of their cheapness, not on account of their excellence, their rarity, or their beauty; and the exhibitors prepared and published a catalogue, in which the prices were marked, for the very purpose of showing that they can undersell the English, particularly in hose, cutlery, and cloth. Till the quality of the articles can be brought to a test, this appears to be possible. They imitate our patterns, and try to sell their goods as English. We noticed, and to our surprise, in the Saxon department, and amongst the hose, one or two pair marked very distinctly in good English letters, "Merino patent," an inscription which used to be stamped on a favourite English production. We had our doubts of the propriety of allowing such *contrefaçons* to appear in the Exhibition. They reminded us of what we saw on the Hartz mountains a great many years ago, where the shot cast at a celebrated lead manufactory were all packed up in bags, with the names and labels of English makers imprinted on them. We were told by an American gentleman in the Exhibition, "It is quite true the Germans have improved very much in making cutlery within a few years. I have had a great deal to do with them in the matter. They were anxious to sell their goods in our markets; but they were so clumsy, our people would not look at them. I then sent patterns of your best London and Sheffield makers to

Solingen, and the Germans made their cutlery after these patterns, putting on them the name of Rodgers and Son, or some other celebrated English maker. The German cutlery looked very well, and was sold cheap; but, on being tried, it proved to be not half so good as that of the English, and I doubt whether the sale will increase." In various kinds of cutlery the Germans made a great show; but it is evident even here, that the bulk of their articles were made after English patterns. The display was intended, too, we believe, more for foreign markets, than for consumption here.

If the Exhibition had been a mart, where the artizan could have bought a pair of pincers, the dandy a cravat, the housewife a jar of preserves or of potted larks, and parents Christmas presents for their children, it could scarcely have been richer in the supply of these and similar articles from Germany. With some exceptions, which it will be our business hereafter especially to notice, the products of German industry, taken as a whole, therefore, might be characterized as displaying little variety; and many parts of it were trivial, neither adding to national wealth nor helping forward national greatness. Admitting the fact, but implying that the Germans have a richer and more varied industry than they have shown, which we doubt, a German writer in the *Allgemeine Zeitung* states "that Germany is here exhibited to foreigners as small change." Who, then, is culpable for having kept back the large coins and the more precious ingots, if they exist? German industry is not only uniform; it is obviously imitative. There is as complete a want of independent thought in their art as in their political reforms.

France had its *bijouterie*, its exquisite ornaments, its unmistakable graceful luxuries, its adornments for boudoirs and persons; England had its solid and compact machinery, often as neat and elegant in form, though rigid, as it was useful; the United States had their rocking and other chairs, their sewing machine, and their almost infinite application of caoutchouc; Russia had its

furs, its hemp, its malachite; even Austria, with its Vienna furniture and its Bohemian glass, which are German, had something of its own. Nay, Tunis and India shone out conspicuous and peculiar. Only Germany, of all the nations of Europe, had nothing apparently in the Exhibition which could be said to be characteristic of it, but its toys, a few scull-caps, and some useful specimens of domestic wool manufacture. Borrowing its ornamental arts mainly from France, its useful arts from England, the things it exhibited were chiefly imitations, very often deficient in the grace, the lightness, the neatness, and convenience of the originals. Its productions were solid, substantial, sometimes cumbrous, and generally honestly made, but they were all in the main French or English, rather than peculiarly German. Perhaps those who had the ordering of the matter wished chiefly to exhibit the success of the Germans as rivalling other nations, and rather brought forward European than German productions. They exhibited no specimen of their durable but old fashioned furniture; of their *frachtwagen*, with their loads packed and secured to resist the jolting of bad roads, like the cargoes of ships, which move not when tossed about by the waves; no specimen of their multifarious vegetable productions on which the bulk of the people live, or of the useful and comfortable garments that their domestic industry still provides for the great multitude, all of which are at once peculiar and picturesque; they are sometimes, too, convenient. Germany has many peculiarities, but they belong to a past age, and the Royal Commissioners who have presided over the German part of the Exhibition, were not desirous to exhibit them. "I cannot deny," says a celebrated writer, "that, in general, the specimens of German industry in the Exhibition (the fine arts not included) have no peculiar character, and give me the idea of its having been the intention to avoid exhibiting what is national. German industry appears in every department to lean on something foreign, or to be an imitation, and nowhere to

stand on its own feet. At one place we see the hand of England, and at another that of France. I may be mistaken, but this is my very distinct impression." If, indeed, we turned to the machinery exhibited, we found it of little importance; and the principal objects, such as the vacuum pan and the Jacquard loom, very imperfectly improved, as compared with others in the building, were borrowed from England or France. The machinery exhibited, and generally, too, the tools and the cutlery, were imitations of those of England, and had nothing to recommend them but their cheapness.

The nature of German industry in general was brought into a strong light by the varied industry of Hamburgh, and the taste displayed in the exhibition of the articles sent from that city. It furnished no less than 123; while the rest of North Germany, the kingdom of Hanover, Lubeck, the two Mecklenburghs, supplied only 35. They consisted chiefly of useful and ornamental furniture, such as sideboards, sofas, chairs, &c., of a very superior description, clocks, musical instruments, specimens of oil-cake and refined sugar, charts, pianofortes, saws, rocking-chairs, looking-glasses, bird-cages, and a large assortment of walking-sticks. Here, however, instead of being merely hung against the wall, they were displayed in a cheerful tasteful manner, so that the Hamburgh room had a light and elegant appearance, superior to that of the central room of the Zollverein, in which were heaped together all the best and richest of its contributions. On entering the apartment, the spectator was much struck by a representation of the sun sending his rays on all sides, placed against the opposite wall of the apartment. It was composed of walking-sticks, chiefly from the workshops of C. A. Meyer, who employs several hundred persons, and exports walking-sticks to all parts of the world. In Hamburgh, as in London, it is a considerable trade; and, being a source of wealth, is not inaptly typified by the sun. Herr Meyer, the founder of the house, is a good specimen of what trade does for men

in Germany as well as in England. He arrived in the city from Thuringia, with no other wealth than his skill in carving wood; and, by care, frugality, and an opportunity of exerting his talents, he has created a large establishment, and become one of the princely merchants of the city. He is an individual example of the general opulence and general industry and skill of Hamburgh. It was, and yet is, practically and truly free—not merely nominally a free city; and the success of its industry as displayed in the Exhibition, in comparison with the industry of the many long-enthralled states of Germany, did honour to its freedom.

As we have already adverted to the sculpture, and intend including that from Germany, we do not extend our present remarks to the latter. German sculpture took a high place in the Exhibition; but that art, though treated successfully by the Germans, we need scarcely remark, was not peculiarly German.

With these first and general impressions, we now proceed to make a tour (from recollection) of the Zollverein department, commencing with that on the north side. Our attention was arrested at the entrance by an object which forcibly reminded us of the military character of the principal state of the Verein, and indeed of all the German states. Planted at the centre, as if to forbid entrance, or at least to allow it only on conditions, stood a remarkably well-mounted field-piece. The gun gave you an idea of solid and substantial work. At the same time it was highly polished; and the plain varnished carriage was a perfect model, on a small scale, like one of Maudslay's engines, of compactness and neatness, combined with great strength. The workmanship had the finish of a jewel, concealing in the instrument the power of a demon. Beneath it were polished cuirasses and other instruments or emblems of war, destruction, and death. This was the shape in which an invention of a new process for the manufacture of one of the most useful things shown in the whole department, cast-steel, was exhibited. We

admire Herr H. Krupp's skill, but should have thought better of him and better of Germany, had it been displayed in rollers such as are employed with great success at Munich, for grinding corn; or surgical instruments, or something more appropriate to this peaceful age and to the Exhibition, than a model field-piece.

Close by it, however, inviting you to the confidence which the gun repelled, hung an altar-piece, in which were worked and emblazoned the words, "*Gott ist die Liebe; und wer in der Liebe bleibt, der bleibt in Gott, und Gott in ihm*"—"God is love; and who dwells in love, dwells in God, and God in him." There was not much in the article to admire, but the sentiment is very expressive of the affectionate kindly character of the Germans. The care they take to provide amusement and employment, as well as instruction for their children, as exemplified in one of their chief manufactures, and which a rugged hard people would have neither patience to begin nor the kindness to continue, was another illustration of the same characteristic. The more one traces their kindness in their manners, the more it is to be regretted that a contrary principle presides over their affairs, as typified by the field-piece. The softness of their character seems to allow a long dominion to a harsh political system; and a little more rugged energy amongst them would keep better in check the violence against which they now only direct a few enigmatic sentences.

Let us pass through the rows of arms, that were somewhat ostentatiously arranged in full display, and direct our attention to the various specimens of crockery, earthenware, or china, manufactured in the neighbourhood of Frankfort-on-the-Oder. It was clear, solid, and generally of pleasing forms, approximating more to our stoneware than to anything else that we are acquainted with, but was superior to that in its clear and uniform glaze. For neatness and utility, it was scarcely surpassed in the whole collection. The porcelain, both of Saxony and Prussia, was of course much more splendid; some of that was very

much to be admired, and seemed to find numerous customers, for several of the articles of the Berlin manufacture were very soon marked, "disposed of;" but the porcelain, with its admirable paintings, came within the reach of a few, while the elegant and clean-looking *thonwaaren* was attainable by the many, and must contribute to the pleasures of all who use it. This ware is largely exported to countries with which England trades; and we are inclined, therefore, to suppose that it must be as cheap as our ordinary ware, and it is, generally speaking, more elegant, and appears less brittle. Combined with several other things which came from Frankfort-on-the-Oder, it gave us a much higher idea than we before had formed of that city as a place of manufacture.

From the very circumstance that much of the cutlery, particularly that from Solingen, was made after English patterns, it appeared very good, and much superior to that which was formerly, and is still very much in use in Germany. Some of the surgical instruments, too, were very good—indeed they are said to be made better in Berlin than in any other part of the continent. Some of the common jewellery, the supply of which was large, was well set; but the bulk of it, as was to be expected from the quantity, was common, and rather tasteless.

Germany abounds in metals; all the zinc in use comes from that country: but, with the exception of its being applied to roof a house, a model of which was exhibited, showing some very substantial workmanship, and for spouts, we noticed no other important application of this ductile, and now much used metal. Those who have visited Germany must be well aware that there are many uses to which it might be most advantageously applied: and it would unquestionably contribute to the health and comfort of the Germans, and the neatness of their houses.

Passing to the west and north, opposite the room for the machinery of the Zollverein, we observed two specimens of massive safes for money and papers. One was

remarkable for the ease with which its heavy doors were moved, and the other for the impossibility of opening it without receiving instructions from the maker, and both for their many conveniences. Four of them, we have understood, have already been ordered from Germany, in consequence of their having been exhibited among us.

The machine-room looked bare, and at least was quite spacious enough for the machinery the Zollverein chose to place in it. We believe that Germany is richer in such contrivances than the Exhibition showed. We should pronounce it very backward, were we to judge solely of the specimens that were sent. Cards for combing, made of imported materials, seemed to us very inferior to those made in Manchester. Engines for coining, punching, and milling were good, but nothing extraordinary.

Civilization and the power of man are directly in proportion as he is enabled by skilful machinery to command the assistance of nature. As he makes the expansive power of steam, or the weight of the atmosphere, or the rushing of streams, work for him, he is strong and powerful. Machinery being generally private property, men cannot be constrained to display it when they fear that the secrets connected with it may be discovered; and hence the samples in the Zollverein were not specimens of the best machinery of Germany. If they were, we should form an unfavourable opinion of the past, and a very unfavourable augury for the future of that country.

Now coming back to the south, we enter the great centre room of the Zollverein, crammed full of the *bijoux* of German art, before describing which, let us direct the attention of our readers to a somewhat elegant pillar which stood on the western side. It represented a group of Amazons—they being apparently great favourites with the Berlin artists, the great Amazon in the nave being only one of many in the Exhibition—made of cast-iron, at the foundry of Berlin, but curiously inlaid with silver. It was remarkable for the simplicity of its form and the beauty of its workmanship. The striking characteristic,

indeed, of most of the productions in the centre hall, where were collected the gems of the Verein, was, we think, beauty of form. The principal contents of the hall were statues, statuettes, painted glass ornaments, pictures, one or two cabinets or ladies' desks, porcelain, &c., all belonging to the fine arts, and all in general distinguished by this characteristic. Even the Berlin porcelain, which occupied a large space in the room, and part of which was copied from renowned works of antiquity, such as the Warwick vase, was as beautiful in form as it was in its ornament, and the designs on it, after Mieris, Vischer, and others, were as fine as art can produce. Less meretricious in ornament than the productions of Paris, and less encumbered with it than those of London, the artistic productions of Berlin, and indeed of all Germany, were chiefly agreeable from the beauty of their forms. Even the elaborate carvings in ivory from Darmstadt, particularly the large goblet, on which the great victory of Hermann or Arminius, from a picture in the possession of the Grand Duke of Baden, was carved in *alto relievo*, were as remarkable for their graceful shape as for their admirable execution. By crowding their finest room with almost innumerable articles of *virtù*, puzzling us to distinguish between them, and losing admiration for individual specimens in multiplicity, the Germans informed us that they set a high value on these comparatively trivial things. The production of them is what the influential government have chiefly encouraged; they have impelled the skill of the people in this direction, and we may expect therefore—or where shall we seek for the utility of royal or noble patronage?—that the arts which spring from them or grow up under their encouragement, shall be marked by superior taste. Amongst the ancient Greeks, and amongst the inhabitants of India, a keen perception of beauty of form seems to have been inherent, and is found almost equally in some of their earliest productions, which have descended to us, as in their latest. But, amongst the Saxon and Scandinavian tribes, judging from

the rude figures of their old idols and earliest heroes yet extant, a perception of fine forms was not innate. It required cultivation, and has been cultivated by studying the examples of the people who were endowed with these perceptions. The highborn and well-educated, the opulent and the ruling classes, have been the means of extending that cultivation. They are conduits through which the old Greek perceptions have been conveyed to their unendowed and uncultivated countrymen. Thus we find their influence and the influence of courts more beneficial in these arts than in any others. Modern artists cannot boast of much novelty of conception. Their finest works, whether of sculpture, painting, or architecture, are generally imitations of the ancients. Nature is as pure and as free as in the times of the Greeks; but man's present perceptions are so mixed with ancient and derived knowledge, that they are confused; and artists are often the most graceful when they return to the original forms. For many years, even for centuries, European artists and their patrons, have aimed at little more than at diffusing amongst the rude people of the North a knowledge of the forms that sprang up intuitively in the minds of the Greeks, and that they have only acquired by a laborious process. By the Exhibition this species of cultivation was rapidly extended; and it seemed likely to do more, in a few weeks or months, to diffuse amongst our people a knowledge of graceful and artistic forms, than had before been done in ages. For the first time almost in our history, the common people of England were brought familiarly into contact with, and derived instructions from, the clear, definite, and brilliant conceptions of the Greeks, embodied in forms that have been preserved and spread by the influence of artists and courts through all Europe. Of our people, too, we are happy to say that the females share largely in the enjoyment and improvement. By a curious, and yet easily traced connexion, establishing a moral relation between the most ancient and most modern nations, the keen powers of perception of the beautiful in

nature with which the old Greeks were endowed, and which were denied to the ancestors of our race, causing a great moral difference between them, are now made to subserve to the improvement of the English. By the Exhibition the bulk of our people were made familiar with form derived from antiquity, and of which they could otherwise never have attained a conception.

Among the articles of *virtù* exhibited by the Zollverein, the bronzes were well worthy of attention, particularly a statuette of Beethoven; we may also notice a large collection of minatures on ivory, painted in a bold style, by a new method, by Hilder, a Wurtemberg artist. Amongst the articles of utility, the cloths, which were very abundant, took the first place in the Zollverein; and remembering that the manufacture of fine cloth is rather modern in Germany, and that homespun woollens, till very recently, formed the staple dresses of the bulk of the peasantry, the progress of the Germans in making fine cloth does them great credit. For some of that they may thank our restrictive laws, which partly force their industry into that channel, and compel them to grow wool and weave it, instead of growing corn and exchanging it for woollens. The damasks of Saxony and the linens of Silesia, the latter now not so highly honoured as they were wont to be, also occupied a large space in the halls and in the galleries, and they are very old and very favourite productions of Germany. In damask linens they excel; and the productions of Messrs. Proels, senior, and Sons, of Leipsic, in the Saxon department, may be mentioned as an excellent example of the produce of the German looms. Many of the woollens that came from Prussia were as remarkable as the celebrated Berlin wool for the richness of their dyes; and there were some common enough cloths at the end of the gallery of the Zollverein, on the south side, worth notice on account of the boldness and distinctness, and the meaning—for many of our patterns are utterly destitute of any meaning—of the designs which ornament them. We discovered, on referring to the catalogue,

that the designs were copies of wood-cuts after Albert Durer, and we do not see why such things should not generally be reproduced, rather than unmeaning scrolls. We need say nothing of the patterns and the wool which were profusely displayed throughout the Prussian department, which has acquired a world-wide reputation as Berlin work, the delight of our wives, daughters, and mothers, and very often of no little comfort to ourselves in its results, if we are occasionally annoyed by it in its progress. Patterns, as well as the materials for embodying them in the canvass, abounded in almost every part of the Zollverein, together with carpets, rugs, table-covers, &c. In fact, the two circumstances of the splendid dyes and the excellent designs, for which Prussian workmen and artists are famous, have combined to make Berlin work so general a favourite. In damask linens, in fine cloths of various kinds, and in woollens of every description and for every use, the Zollverein was particularly rich. Taken as a whole, woollens were not only the most useful, but the most conspicuous production of German industry, and that in which they have attained the greatest excellence, and are making the most rapid advances. Connected, too, with them, we must add that there were numerous specimens of very fine wool, the produce of the German provinces and other flocks.

Berlin has been famous, at least since the time of Diesbach, 1710, when Prussian blue was discovered, for its chemical products; and all through the eighteenth century, as well as before it commenced, some of the most distinguished names in the annals of chemistry were those of Germany. After the woollens, the chemical products of the Zollverein in the Exhibition ranked high. The specimens of beet-root sugar, which were perfect, and the product entirely of chemical art, the specimens of perfumery, of various salts and pigments, the crystals of several substances exhibited, all testified to the fact that the Germans continue on this point to deserve their well-acquired reputation.

In the vast and very miscellaneous productions which they sent us, we can only particularize a few more. We observed numerous specimens of types and of books, ornamented and plain, which did honour to German typography and their skill in illustration. Contrasting some of the books displayed there by Decker and others, with the ordinary books and newspapers of Germany, it is impossible not to wish that in the matter of paper at least some of the substantiality of the books exhibited might be imparted to the common productions of the booksellers. But it is probable, after all that is said of the durability of books, that the most flimsy are the best adapted for our transition age, as not likely long to stand in the way, either on our bookshelves or in our minds, of the improved works of which they are to be the parents. Connected with books, were many maps, geological as well as geographical, with a large globe to show the comparative elevation of the mountains of the earth, and other helps to diffuse knowledge. The Germans are not behind in applying papier mâché, which will take any form, and which, though made from refuse, is one of the products of human skill best adapted, of all those yet acquired, to various figured ornaments, as well as to many useful instruments and utensils. The Germans exhibited many specimens of their success in papier mâché, the name of which informs us that the art is neither of English nor of German invention. As we had specimens of our coal, so the Germans, particularly in the Hamburgh department, exhibited many specimens of their charcoals, of which they make great use, and which they apply in various forms to various purposes. They showed us, also, many of their mineral products, particularly from Nassau, from which little else had been brought than ores of lead, copper, zinc, manganese, iron, &c. Other things in which they excelled, or at least made a good show, were philosophical and musical instruments—characteristic of their harmony and their devotion to science. In the Hamburgh department, we found not only some excellent furniture

but veneers fifty-four plates to the inch : or the mahogany was cut into planks, each of which was only the fifty-fourth part of an inch thick. Till a recent period, when Sir Robert Peel abolished the duties on furniture woods, the inhabitants of Hamburgh had a considerable advantage over our furniture makers, and they sent great quantities of furniture over to various parts of America. They still carry on this profitable and useful business ; but our people are now in a better condition to compete with them than they were, and, by the abolition of the duties, a valuable trade has been preserved to our country.

Here we must stop. Though the productions of German industry were by no means so numerous, so rich, nor so varied as those of French industry, with which, excluding Austria, they might be most appropriately compared—though the Germans were in the Exhibition remarkably deficient in machinery—their products were numerous and miscellaneous. In general, except as to cast iron, bronzes, chemicals, dyes, and some woollens, German industry seemed a step below that of either France or England. It is, however, plain, that the Germans have a great aptitude for improvement : we regard them as only recently aroused to a due sense of their relative position in knowledge, skill, politics, and morals, to the rest of Europe. They occupy a noble country ; and as they become sensible of their wants, they cannot fail to achieve a commanding success. In them we have great reason to be interested, and them we must wish to see strong, prosperous, and united. They stand between European civilization and Cossack barbarity ; and the hope we have that the latter will not be suffered to advance and prevail westward, rests on the Germans, and rests on the improving people as contradistinguished from their interfering, and, we are afraid, sometimes retrograde rulers.

Before we entirely take our departure from the Zollverein department, we must not omit to notice one very amusing and interesting feature it possessed ; we allude to

the collection of stuffed animals, which were indeed so admirably got up, that they were worthy of the attention of Waterton himself, the great Nimrod of South America, of whose prowess in the savage wilderness, among the *feræ naturæ*, his own ancestral halls in the heart of Yorkshire afford ample testimony, and whose redoubtable arm slew, in single combat, every grim specimen he has therein collected and so skilfully preserved. Judging from the crowd that was always collected around the stuffed animals in the Zollverein department, it would seem to have been the most popular group of objects in the Glass Palace. Doubtless, some part of its attractiveness was due to the predominance of family parties in the collection. Quite independently of treatment, any artist who introduces the young of animals and the instincts of maternity in operation, is sure of attention. Here we had partridges and their young, hawks and their young, a hooded owl protecting her nestlings from the onslaught of weasels, a female fox and her cubs awaiting their sagacious sire, who is bringing them a partridge to feast upon. There were also groups in caricature. Stoats and weasels, in sportsman-wise, pursued their game of young hares and rabbits. A party of kittens were enjoying the pleasures of the tea-table, and various other amusing groups were exhibited, in which the artist had succeeded in throwing a most whimsical air of sentimental gentility. The most attractive portion, however, of this display, consisted of a series of *tableaux* from the old poem of *Reynard the Fox*, a great favourite with the German children, and which we remember to have seen powerfully illustrated in the dark mysterious etchings of Roland Røghman. The incidents that were selected for representation were, the Cock receiving Reynard's confession of sin—Reynard leading the Hare to Court as a witness—Reynard at Home, carelessly reposing on a sofa, his tail resting on his left arm, and equipped with sash and dagger, *à la brigand*. Our hero was next seen attacking the hare on his way to court, after which he was represented giving the cat a letter of introduction

to court. It was impossible to conceive anything better than the attitudes of all these animals, and they had just as much clothing put upon them as was necessary to produce a good effect.

## CHAPTER XVIII.

LABORIOUS TRIFLES—INGENIOUS ABSURDITIES—THE ISLAND OF LAPUTA—DUNIN'S IRON MAN—THE EARTH A LIVING CREATURE—THE MEDICAL WALKING STAFF—ARTICLES IN MUTTON FAT—WONDERFUL ACHIEVEMENT WITH A PEN-KNIFE—CHINESE NICK-KNACKS—WILLOW WOOD COTTAGE—ELABORATE CORKSCREW—SELF-ADJUSTING RAILWAY—WONDERFUL KNIVES AND SCISSORS.

As the whole world was invited to display their talent, their industry, and their inventions, and to contribute to the vast display of human genius in the great show of the World's Fair, it was to be concluded that the public would occasionally have to put up with the productions of dreaming insufficiency, as well as to be gratified with the elaborate creations of scientific usefulness, and which, indeed, might serve as a foil to the more predominant examples of opposite excellence. And this was singularly the case. We will accordingly proceed to enumerate a few of the absurdities, which, in amusing variety, were brought before the eyes of the curious and astonished observer in the Crystal Palace.

“There are more things in heaven and earth  
Than are dreamt of in your philosophy,  
Horatio,”

was the shrewd observation of the sagacious Hamlet, but we feel assured that even his philosophy never indulged in such wild speculations as were put forth in the ever-

memorable year of 1851, to an admiring world, in the far-famed precincts of the wondrous House of Glass.

*Philosophy in Sport made Science in Earnest*, was the title of a little book which we recollect reading with very great pleasure some years ago; and, published at a time when the generality of the community had hardly begun to inquire "in earnest" into the important secrets of natural and physical science, now every day producing such useful practical results, the modest duodecimo in question did good service by awakening and inviting very many individuals to the pleasures and advantages of various branches of study, which they would otherwise never have dreamed of including within their province of intellectual observation. But "philosophy in sport" is not always "science in earnest," and industry, unguided by the unerring truths of philosophy and the essential demands of utility, is sometimes nothing better than industry "run mad." Industry is one thing, and caprice is another and a very different thing: in like manner, we may say that ingenuity is one thing, and whimsicality another; persevering good sense is one thing, and persevering folly a very different thing: so of workmanship and the production of a useful article, when compared with a prolonged waste of human labour in concocting and finishing a trifle, a toy, or an absurdity. These things all involve a different species of effort and result, and call for a very different sort of estimate. Amidst the innumerable examples of well-applied labour in the Great Exhibition, it must, nevertheless, be confessed that there were also a considerable number, amounting, indeed, to a motley variety of articles, in the construction of which we are bound to say that much thought, and yet more labour, have been grievously misapplied.

Foremost amongst these we must place Count Dunin's "Man of Steel," which is an invention of so singular and so puzzling a nature, that we feel convinced the author of it must have taken his degree in the academy of Laputa, among the celebrated professors there so admirably

described by Swift. Indeed, as respects the utter inutility of his most elaborate production, he has gone far beyond the experimental philosophers of the Flying Island. The worthy experimentalist who ingeniously attempted to extract sunbeams out of cucumbers, had at least some pretence towards a useful purpose; and the learned and literary world would have had reason to bless, had it but succeeded, the projector of the noble idea, far superior to the wonderful calculating machine, from the aid of which "the most ignorant person, at a reasonable charge, and with little bodily labour, might write books in philosophy, poetry, politics, laws, mathematics, and theology, without the least assistance from genius or study." We shall not attempt to enter into a description of this most desirable piece of machinery, but we think it might be worth the while of the ingenious inventor of "the great iron man" were he to carefully peruse the whole of the renowned Gulliver's account of the proceedings of these sublime philosophers of Laputa, nothing doubting that he would profit by many of the hints and descriptions he would there find detailed.

This piece of mechanism was in the figure of a man, and was constructed of seven thousand pieces of steel. Most of them appeared to be either springs or slides, and they were so put together and arranged as to be capable of a graduated movement, by means of which the proportions of the whole figure might be expanded from the standard size of the Apollo Belvidere to that of a Goliath. From these colossal proportions it might again be contracted at pleasure to any size between them and its original standard. The mechanism was composed of 875 framing pieces, 48 grooved steel plates, 163 wheels, 202 slides, 476 metal washers, 482 spiral springs, 704 sliding plates, 497 nuts, 8,500 fixing and adjusting screws, with numerous steadying pins, so that the number of pieces was upwards of 7,000. The only utility we ever heard suggested as derivable from this elaborate piece of mechanism, was its applicability to the

various measurements of army clothiers or tailors, as it would serve for the figures of men of various sizes. We do not know whether this was the purpose assigned to it by the inventor, as it seems a very absurd one; the same result being far more easily attainable by the incomparably more simple means of half-a-dozen dummies, or wooden lay-figures.

But hold! it behoves us to speak with deference and humility in this matter, seeing that the Council of Chairmen of Juries, the supreme heads of wisdom, to whom the dispensation of the Exhibition honours was intrusted, thought proper to reward the constructor of this huge mechanical toy with a "Council Medal." Yes, hear it Troughton and Simms, who talk about novelties in astronomical instruments, to which a council medal was denied, though recommended by the jury; hear it Claussen, whose newly-discovered, and nationally important processes in the preparation of flax received only a common medal; hear it, Losely, whose compensated pendulum, one of the most ingenious and valuable improvements in horology in the whole Exhibition—hear it Applegarth, whose vertical printing machine—hear it all ye whose performances had to share the common fate of merit in "a certain degree;"—the Jury in Class X. ("that of philosophical instruments, and processes depending upon their use,") awarded, and the Council of Chairmen confirmed to Count E. Dunin a council medal—"For the extraordinary application of mechanism to his expanding figure of a man!"

After reading this result, we began to be somewhat doubtful about all we set out with touching "philosophy in sport," and nice distinctions between "ingenuity" and "whimsicality" and so forth; and in a moment of bewilderment and irritation, were almost upon the point of consigning the notes upon which the rest of this article will be composed to the fire. But fortunately, we were restrained from so doing, by an urgent application for "copy" from a quarter which is not used to be denied, and therefore we proceed with the task upon which we set out,

Still in the philosophical instrument department, we come upon "an apparatus of a peculiar construction, showing the ebb and flow of the tides," exhibited by a Mr. Ryles, of Cobridge, Staffordshire Potteries, who thus describes the novel theory it is intended to illustrate:—  
"The article I sent to the Exhibition, is an apparatus to *illustrate the idea of the earth being a living creature encased in a shell*, as a snail-house or sea-shell, and by the action of the heart, causing the tide to ebb and flow! Press down the blower, and the heart (as seen through the glass that is on the top of the shell), will contract, causing the tide to rise; let out the air of the shell, and the heart will expand, causing the tide to fall." He adds, "I want a patron that would enable me to show how *the tide causes the rotatory motion of the earth*, which only poverty prevents my doing." Mr. Ryles has *not* received a council medal, nor a prize medal, nor even "honourable mention," which, considering the honours heaped upon the "expanding figure of a man," we consider hard. The least Count Dunin could have done, would have been to have shared his council medal with Ryles, and, thrusting the model of the "living creature" constituting the earth, into his "extraordinary application of mechanism," exhibit its expansibility by revealing "the action of the heart" of the encased monster.

Dr. Grey invented a medical walking-staff, containing instruments, medicines, and other professional articles. Would not a small tin case have answered the same purpose far better, and far more conveniently, as it might be put into the pocket, where the "medicines," not being half so much "shaken" as in the walking-staff, would have less chance of fermentation or other injury?

An "artificial silver nose" has been invented by Mr. Whitehouse. We will not pronounce rashly upon this; but it strikes us, that all artificial noses, both in shape, size, and the amount of nose required, will depend upon the amount wanting by an individual, and the size and shape, in fact, suited to his particular case; the material

also of which the nose is manufactured would very often have to be regulated by the special circumstances.

Art-manufactures in *mutton fat* are certainly a novelty, and Mr. W. E. Hall, of Bideford, exhibited "a socle, or kind of vase," made of a mixture of mutton fat and lard. We should fear that in a hot summer, or in a cold winter, when a good fire is needed in the room, these articles would be extremely liable to a change of form not at all contemplated by the inventor; nay, there might be occasions on which they would "run away" altogether.

Mr. M'Clintock, of York, exhibited a chain in regular links, the whole of which, we are informed, had been cut out of a solid block of wood: to what purpose, except to the unnecessary length of time such a performance must occupy, we are totally at a loss to conceive. Mr. M'Clintock has, however, been surpassed by a lieutenant of the navy, whose name has escaped us, and which we do not know where to look for in the Catalogue, who had achieved the same result from a block of wood, with the help of no other tool than a penknife. Will anybody endeavour to surpass them both, we wonder, by doing the same thing with a pin?

We do not very well know what to say about the "ostracide," the instrument with a grand name for opening oysters, and bearing a close resemblance to a pair of sugar-nippers. It may be useful, or it may cut the oysters to rags in the operation; we hope not; but Messrs. Brown, of Newcastle; will excuse us if we hint, that, to avoid this, it may be necessary to practise opening oysters with the ostracide almost as much as with the old-fashioned oyster-knife.

"The semibreve guitar" of Mr. Dobrowsky was a good thought enough for a new name, and for a fresh attempt to prolong the sound of the notes of the guitar; but if the inventor would have us understand by the term "semibreve" that his instrument will sustain a note of any such duration, we must plead absolute scepticism to

the possibility of any instrument of this kind being made to accomplish such a result.

The enharmonic guitar, manufactured by Panormo, of High-street, Bloomsbury, claims for its original inventor and designer no less a personage than the ingenious Colonel Perronet Thompson, M.P., who some years ago invented a new kind of organ. Of the enharmonic guitar lately exhibited, it was announced that it was "capable of being arranged in the perfect ratios for upwards of twenty keys." We do not doubt this; we accept it at once, not only from what we know of the scientific capabilities of a guitar, but of the great scientific attainments of Colonel Thompson: but after his enharmonic guitar has been "arranged" for any of these keys, what will be the effect of "playing" in them, amidst all this mechanical interference with the finger-board? So much for the impediments to execution, to say nothing of tone. We must say, in justice to Mr. Panormo, the manufacturer, that, being convinced his own simple guitars on the Spanish model have more tone in them than any other, we regret he should have employed so much labour in the construction of this very ingenious, learned, and impracticable invention.

Mr. Jones, of Lombard-street, exhibited "a silent alarum bedstead to *turn* any one *out of bed* at a given hour." This is certainly one of the most amusing inventions we ever heard of. It assumes a degree of density in the sleeper which no alarum can affect, or else a singular amount of luxurious weakness of purpose. The bed, therefore, acts the part of resolution for the sleeper; and having been "set" over night for a given hour in the morning, the said incorrigible sleeper finds the bed revolve so as to tilt him out; and a bath being placed by the bed-side, he may at once be relieved of all need for summoning a resolution either to get up or to take a plunge.

The Chinese have long been famous for their caprices of invention, and whimsicalities of workmanship, over each article of which the greater portion of the lives of

several artizans appear to have been expended. They exhibited some of their celebrated ivory balls, richly carved outside, and containing another, a size less, inside, richly carved also, with open-work, to show you that there are balls within balls to the extent of twenty or more, each cut clear of the rest, and carved and capable of being turned round—the whole of these being produced by means of a variety of curious tools and instruments, out of the first solid ball. This, they assert, nobody else can do; and it may be true, for the Chinese are capable of wasting any amount of time upon any triviality. But the Chinese are not the only people who have a love for difficulties, for the sake of the unnecessary labour and time they involve, which give the articles so much additional value in their eyes. If Quang Sing, of Canton, carves and engraves upon peach-stones, and makes baskets and boxes with the stones of apricots and nectarines, Mr. Jacob, of Coventry-street, displays egg-shells with carvings and engravings upon them, and “views inside.” If Shee-king, of Macao, delights in wasting his own life, and the lives of others whom he employs, in carving a nest of ivory balls out of one solid ball, instead of obtaining a similar result, (if the world *must* have these toys) by the regular tools and simple means of ivory workmanship, we find several of our own countrymen equally assiduous in substituting a common penknife in order to perform operations which proper tools would effect far more easily in a tenth, perhaps a hundredth part of the time. There seems, in fact, a sort of mania for this penknife-work. Mr. Aston, of Chelsea, executed a model of St. James’s Church, South, in cardboard, with a penknife; Mr. Scollick, of Birmingham, exhibited a model of St. Paul’s Cathedral; and Mr. Dickenson, of Waterloo-place, a model of York Minster, each in cardboard, and each employing no better instrument than a penknife. M. Schnitzer, of Jerusalem, exhibited two vases carved out of a species of sandstone found in Jerusalem, with a penknife, which the proprietor, Sir Moses Montefiore,

gravely takes care to inform the world was "an ordinary penknife."

In like manner, we found an exhibitor who displayed a model cottage composed of 2,000 pieces of willow wood (these also were all carved with a penknife); and there was a table to be seen which was composed of 2,000,000 of separate morsels, all inlaid in mosaic-work. The practical philosophers and economists of modern times complain of the great waste of human labour in the construction of the Pyramids of Egypt—let them consider the same subject in reference to this table. Many of our readers were, doubtless, like ourselves, much struck with the model of a ship, made with bottle-corks, and rigged in the same fashion. The object of this "caprice" we cannot fathom. Mr. Cossens, of Holborn, exhibited a model made in elder pith; and Mr. Clifford, of Exeter, displayed models made "of the pith of the common green rush," which he carefully informed us was such as is "used in making rush-lights." In one of Hogarth's prints there is a capital satire upon the expenditure of extraordinary means to produce a simple result. You see a pile of complicated machinery, which indicates that an operation requiring great power is about to be displayed. The skill of the artist in the design and the arrangement of light and shade causes the eye to travel about and examine the various parts of the machinery, in order to ascertain the work it is about to perform, when finally you discover, at the bottom of the great machine, an ordinary wine-bottle, the neck of which is corked, and the whole of this machinery is evidently employed in "drawing the cork." Of a similar kind of elaboration, in order to effect a very simple object, we fear we must class some of the new inventions in horns and flutes, to the former of which many complicated crooks and curves, and to the latter many scarcely practicable keys have been added, merely to enable the instrument to produce a certain note which might be omitted with no great loss, or produced by other means. Nothing injures tone more than a superabundance of mechanism. Vivier

always plays on the old French horn, without any of the complicated improvements, and Nicholson used to play on a flute much simpler than many now exhibited, and we have never heard any performer who gave so much tone to the instrument.

An American inventor, of the name of Wood, exhibited a combination of the pianoforte and violin, with which he assumes that pieces can be played with the effect of these two instruments in concert. Something like this, no doubt, may be accomplished by giving an attachment to the piano, which shall produce a resemblance to the sound of a violin; but in the present instance the inventor has literally attached a violin, played upon by four bows, which are put in motion by a separate set of keys on a small upper finger-board, which cause the bows to "saw" (as we may truly say) upwards and downwards, with an effect which we frankly confess to be indescribable. One might see the whole operation, and a more ludicrous thing, both to see and hear, it has seldom been our lot to experience. Moreover, there was nothing new in the contrivance. The "Philosophical" Jury, Class Xa, however, discovered some peculiar merit in it, and awarded the maker "£50 for the expenses incurred in constructing his piano-violin;" a slice of "solid pudding" (as *Punch* describes his imaginary award of £20,000 to Sir Joseph Paxton), far more acceptable than medal or "honourable mention."

An inventor exhibited "a model of a carriage," which supplied its own railway, laying it down as it advanced, and taking it up after the wheels had passed over. This was no doubt extremely ingenious, but, unfortunately, it *supposed* the existence of a level line for the operation, so that its utility becomes rather questionable. A drinking-glass was exhibited, with a partition for soda and acid, to be mixed separately, the junction of the two streams effecting effervescence only at the moment of entering the mouth. Few people could "stand this," we should think.

In the windows of most of the great cutlers of London

may be seen knives with an extraordinary number of blades; and on the ground-floor of the Grand Exposition was exhibited a large glass-case, as big as a handsome summer-house, full of all sorts of fine cutlery and other workmanship in steel, the most prominent features of which were several of these preposterous knives. Some seemed to have 50 blades, of all sorts of shapes and sizes, others 150 blades, and one or two of them, we felt assured, could not display less than 400 or 500 blades. To accomplish this capricious feat, the inventors were always obliged to have recourse to a strangely thick handle of an utterly impracticable kind as to all handling: and in the glass-case referred to might be found one in the shape of a cross, thus combining four handles, each one crowded with blades; another had the handle in the shape of a star or double cross, thus combining six handles, each one bristling with blades, and arranged at the end of each handle in the form of a fan of bright penknives and blades of instruments. But all these were surpassed in capricious ingenuity by a "knife," the handle of which, if we must call it so, is a combination of three handles, each in form of a cross, the largest being in the middle. The three crosses are combined by an upright shaft, and each of the three comprises four handles. Thus, we have twelve handles in one, and from each of the twelve there stuck out a shining fan-work of blades and steel instruments of all conceivable shapes, and all real or imaginary offices, not one of which could be put in operation amidst such a crowd. It was one of the most wonderfully useless things we ever saw. As to the number of blades and tools, they defied calculation. In the same case might be seen miniature knives, which were actually of the same kind, and presented numerous blades from a handle of an inch and-a-half in length. Also miniature knives and scissors of an inch long, of half an inch long, and of a quarter of an inch long; and, by way of completing the wonder, twelve pairs of miniature scissors, placed in little brass scales, which showed that the whole twelve only weighed half a

grain. They required a microscope to be seen properly, when it became manifest that they were perfectly formed scissors. We suppose Messrs. Rodgers would say, in explanation of all this fancy-work, that the *use* of it was to show the world what Sheffield could do, not only in work, but in play.

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## CHAPTER XIX.

### SCULPTURE—*continued.*

JOHN HAMPDEN—SHAKSPERE—FLAXMAN—THE ELDON GROUP  
—DR. JENNER—THE MARQUIS OF BUTE—BACCHUS—ARIADNE  
—VIRGINIUS—EARLY SORROW—EVE—THE LION IN LOVE—  
CUPID—PAOLO AND FRANCESCA—YOUTH AT THE STREAM.

Of all the forms of the beautiful, perhaps none excite the admiration and sympathy of the public mind in a higher degree than the products of the sculptor's art. To the uneducated eye, the human form, modelled in clay or chiselled in pure white marble, seems fraught with grace and vigour, and an unconscious education of the feelings is going on as it gazes on the wondrous symmetry of a Venus de Medicis, or beholds the agonizing throes of a Laocoon. To the man of taste and refinement the process of thought and appreciation is different, though the ultimate effect is the same;—to both there is profit. While the ordinary mind is absorbed, spell-bound, entranced in a kind of admiring awe, the educated man admires, criticises, appreciates. Though the art-education of both men has been conducted on different principles, the result arrived at is precisely similar, and both are equally informed and humanised.

The art of sculpture, with the kindred arts of modelling, carving, and casting, are of very remote antiquity. The

ancients availed themselves of almost every known substance capable of being cut or moulded into form ; and we find the remains of figures, architectural ornaments, vases, lamps, and pedestals, in marbles, woods, metals, ivory, bone, granite, porphyry, basalt, alabaster, stucco, wax, clay, and terra cotta, or baked earth. There is no reason to doubt that the art of sculpture was known before the flood ; and we have certain evidence that it was practised in India and America by civilised races of men, known now only traditionally, and of whom no other traces remain. Indeed, the late discoveries of Mr. Layard in Nineveh, prove incontestably that the sculptor's art was practised, and arose to a remarkable degree of perfection, thousands of years ago.

Universal as language, the art has risen from the rude forms of savage worship to the perfection in which we view it in our public buildings, our streets, and lately in the Crystal Palace. The productions in sculpture are either complete figures or groups, which may be viewed from all sides ; or objects more or less raised, without being entirely detached from the back-ground with which they are connected. This is called *relief*, the kinds and degrees of which are defined by modern writers and artists by the words *alto*, or high relief, where the objects project so as to be nearly distinct ; *basso*, or low relief, where the figure is slightly raised from the back-ground ; and *mezzo*, or half-relief, where not more than the face and half the figure is raised from the place on which it is sculptured. Examples of these were to be seen in the Exhibition, and there are some also in the British Museum.

Nothing can be more simple than the mechanical processes of sculpture. As soon as the artist has conceived his subject, and made his drawing upon paper, a model in clay, or some soft material, is executed in *little*. In the production of the model it is that the artist-mind is displayed ; if *that* be true and natural, its transference to stone or bronze is a matter of comparatively minor importance. Upon a frame of wood or iron, the figure is

built up to the size it is to assume in the chosen material, and moulded by the hands and certain simple instruments in wood and ivory. Arrived at this stage, the drawing, or original idea of the future statue is reconsidered; and by the assistance of the human figure, minutely studied, is carried to completion. Statues are frequently modelled nude, and afterwards draped; and that accuracy of form, and gracefulness of outline may be obtained, draperies are commonly placed upon lay figures, the details of which are copied by the artist. When the clay model has sufficiently dried and shrunk, a mould is made of it by covering it with gypsum or plaster of Paris. When this is sufficiently hardened, the clay within is carefully removed, and there remains an exact mould of the model. This being carefully washed, and the interior brushed over with a composition of oil and soap, the mould is thoroughly filled in all its parts with a semi-liquid mixture of gypsum, which, in a few days, becomes sufficiently hard to allow the mould to be removed, and thus a complete cast of the model is procured. From this short description of the method almost universally pursued, it will be seen how the plaster casts in the Crystal Palace have been produced.

The model is to be executed in marble. The process of transference is a matter of mechanical rather than inventive skill. By means of a long steel needle, attached to a pole or standard, and capable of being withdrawn or extended, the exact situation of numerous points and cavities in the figure to be imitated are ascertained; and the statue is rudely blocked out and pointed. A superior workman, called a carver, then takes the marble and copies the more minute portions of the work by means of chisels, files, and rasps; and the statue being now in a sufficiently forward state, the final finishing touches are given by the sculptor himself. In the production of the model and harmony of effect, beauty of feature, variety of texture and surface, and consistency of detail in form and expression in the finished statue, the sculptor's skill is eminently displayed;

and while the ancients relied almost on the chisel for their effects, the modern artist in marble approaches the surface of his statue with extreme caution, and employs safer means of giving a perfect finish to what may bring him both fame and fortune. With this preface, then, we shall now proceed with our remarks on the sculpture in the Great Exhibition, and, in doing so, begin with a noble name, dear to Englishmen, and to every lover of freedom throughout the whole civilized world. We allude to the immortal Hampden, whose stalwart form in plaster cast, modelled for a statue in marble, which now is placed in the new palace at Westminster, formed a conspicuous and attractive object in the Crystal Palace. And certainly, when we consider the part its original played in the history of his country, we can conceive no better site for it than among the senators of Great Britain "in Parliament assembled."

The contemplation of this fine statue failed not to recal to our minds the interesting actions of this noble man's life. Born in London, in 1594, he entered at an early age as a commoner at Oxford, which seat of learning he left for the profession of the law, studying for a short time in one of the inns of court. The death of his father, however, putting him in possession of an ample estate, he retired to Buckinghamshire, and for a while pursued his quiet career as a country gentleman. Events, however, arose, which called forth the natural energy of his mind. Cousin-german to Oliver Cromwell, he could not look calmly upon the usurpations, as they were considered, of Charles I.; and, therefore, he soon attached himself to the popular party. In 1626 he entered the House of Commons, and soon after married a lady of the Foley family. In Parliament he uniformly opposed the arbitrary practices of the kingly prerogative, and the illegal impost of ship money; and, being prosecuted for his adherence to the popular cause, and for the part he had taken in reference to a contemplated emigration to New England, he defended himself in person against the crown

lawyers in the Court of Exchequer during a trial which lasted twelve days. Although he lost the cause, his defeat was looked upon as a triumph to the popular party. Henceforth he took a leading part in the contest between the Crown and the Parliament; and when at last an appeal was made to arms, he accepted the command of a regiment in the Parliament army, under the Earl of Essex. His military career, however, was short; but it was long enough to prove his courage and perseverance. Prince Rupert coming suddenly upon the Parliamentary troops, near Thame, in Oxfordshire, Hampden eagerly headed a few cavalry that were rallied in haste, and, in the skirmish that ensued, received a wound in the shoulder, which proved fatal. After lingering in much pain and suffering for six days, he died on the 24th of June, 1643. His death was as great grief to his own party as it was a source of joy and congratulation to the adherents of the Crown. Time, the great leveller, has enabled us, however, to look with cooler judgment and clearer sight upon the great transactions in which Hampden and Cromwell were engaged. Party feeling on the subject of prerogative has died out, and all parties are in this day agreed to call the original of this fine statue by his ancient cognomen—"the patriot Hampden."

As we are now upon the subject of great men, we will advert to a name illustrative of all that is great and excellent in the world of poetry,—

"Sweetest Shakspeare, fancy's child,"

to whose worth, all writers in every succeeding period, from the grave and philosophic Milton to the incomparable author of *Rasselas*, have delighted to bear testimony. The former has summed up his eulogium in the following vigorous sonnet:—

"What needs my Shakspeare for his honored bones  
The labour of an age in piled stones,  
Or that his hallowed relics should be hid  
Under a star-ypointed pyramid?"

Dear son of memory, great heir of Fame,  
 What need'st thou such weak witness of thy name?  
 Thou in our wonder and astonishment  
 Hast built thyself a live-long monument,  
 For whilst to the shame of slow-endeavouring art,  
 Thy easy numbers flow, and that each heart  
 Hath from the leaves of thy unvalued book,  
 Those Delphic lines with deep impression took,  
 Then thou our fancy of itself bereaving,  
 Dost make us marble with too much conceiving,  
 And so sepulcher'd in such pomp dost lie,  
 That kings for such a tomb would wish to die."

We have presented our readers with an engraving of a statue of our immortal bard, by Bell, which, from its graceful and dignified character, attracted considerable notice among the lovers of the plastic art.

Descending to more modern times, we must not forget to notice the statues of lords Eldon and Stowell, remarkable for the accuracy of the likenesses, and the calm dignity of the attitudes. These noble statues, executed by the late Musgrave Watson, were carved each out of a single block of marble, the whole weighing upwards of twenty tons. The admirable group, representing the brothers, John, first Earl of Eldon, who was nearly twenty-five years Lord High Chancellor of Great Britain, and William, Baron Stowell, twenty-nine years Judge of the High Court of Admiralty, is the property of the present Lord Eldon, for whom it was executed by the above-named eminent sculptor. Alas, for the fame of the gifted! Mr. Watson lived long enough to achieve but not to enjoy fame. It is the old story over again: genius lives in obscurity and dies in poverty; and then all at once the world wakes up to the knowledge that a great spirit has gone from out its portals. Quite grieved and beside itself, the world of wealth wrings its hands in impotent regrets, and raises a monument to the memory of the genius which a little encouragement and a little sympathy would have kept alive. Let us pass on.

Although we have already, in a former part of this

work, paid the passing tribute of a word in favour of another statue by this lamented artist, which graced the sculpture court,—we again, to give him “honour due,” bring the name of the illustrious Flaxman to the recollection of our readers, in order that such of them as had not an opportunity of admiring the exceeding beauty and tranquillity exhibited in the features of the talented artist during the late Exposition, may now be informed that they may still enjoy that privilege, by paying a visit to the Flaxman Gallery at the London University, where, through the praiseworthy exertions of a friend of the great artist, and the generosity of his near relative, besides the statue itself, an interesting collection of *bassi relievi*, and finished pieces of sculpture from the same talented hand, are placed in a handsome apartment, in lasting memorial of his immortal genius.

We next have to notice the fine models for statues of Dr. Jenner and the late Marquis of Bute, by Mr. J. Thomas. The names of both physician and peer are familiar to the public ear, the first as the discoverer of vaccine inoculation (a discovery of incalculable importance, considered in its proper light), and the last as being the descendant of the famous prime-minister under whom the peace of Fontainebleau, in 1763, was concluded.

In our description of the sculpture from Tuscany, we omitted to make mention of several pieces of merit which we shall in the course of these strictures duly enumerate. And first we shall direct the attention of our readers to a fine recumbent figure of Bacchus—

“Bacchus who first from out the purple grape  
Crushed the sweet poison of misused wine.”—*Comus*.

and a graceful and poetical representation it is of the joy-inspiring god, not the semi-Silenus of the drinking songs of our forefathers, but as he is invariably represented in the Grecian mythology, almost “severe in youthful beauty,” and a fitting inamorato of the fair Ariadne whom he wooed and won. Even the grave and

lofty Milton deemed him worthy of his muse in his poetical epistle to Diodate—

“ And why should revelry and wine  
Be shunned as foes to song divine ?  
Bacchus loves the power of verse,  
Bacchus oft the Nine rehearse ;  
Nor Phœbus’ self disdains to wear  
His berries in his golden hair,  
And ivy green with laurel twine ;  
And oft are seen the sisters nine  
Joining in mystic dance, along  
Aonia’s hills, with Bacchus’ throng.  
In frozen Scythia’s barren plains  
What dulness seized on Ovid’s strains ;  
Their sweetness fled to climes alone  
To Ceres and Lyæus known.  
What but wine with roses crowned  
Did the Teian lyre resound ?  
Bacchus with pleasing frenzy fired  
The high Pindaric song inspired ;  
Each page is redolent of wine  
When, crashing loud, the car supine  
On Elis’ plains disjointed lies,  
And soiled with dust the courser flies.  
’Rapt with the god’s all-pleasing fire,  
The Roman poet strikes the lyre,  
And in measure sweet addresses  
Chloe fair with golden tresses ;  
Or his loved Glycera sings  
Touching light th’ immortal strings.”

—*Milton’s Latin and Italian Poems.* Translated by J. G. STRUTT.

Whilst we are on this classic ground we must not forbear to notice the “Ariadne” by Kirk, who was represented sitting by the sea-shore, in melancholy-wise, after she had been deserted by the faithless god. Our readers will doubtless recollect the beautiful picture by Titian illustrative of the same subject.

“Virginius and Daughter,” the production of P. MacDowell, R.A., next claims our attention. It was worthy of it; we all recollect the story of the stern old Roman who preferred plunging a dagger into his daughter’s heart rather than she should become the mistress of a

tyrant. How exquisitely was the idea rendered! The indignant father, with his dead child on his knee, raised his hand to heaven and denounced the base Appius Claudius, in a voice that was impressive enough to command for him sympathy and popular applause. Considered as an artistic performance this group might be pronounced first-rate. It stood in the south transept. Mr. Mac Dowell's "Early Sorrow," in the sculpture court, and his "Eve," in the south transept, were really fine, and second to, perhaps, no nude figure exhibited—not even excepting the famous Greek Slave.

"The Lion in Love," was a group in plaster, by S. Geefs, of Schaerbeck, near Brussels, and its place in the Exhibition was in the main eastern avenue, immediately before Simonis' famous equestrian statue of Godfrey of Bouillon. A small figure in marble, by the same artist, of Cupid, the God of Love, was sufficiently demonstrative of the graceful and poetic character of the sculptor's mind. With what almost human feeling the "brute enthralled" looked up into the face of its fair enchantress, and with what tender care the beautiful maiden tended her leoline lover! Really a fine conception, adequately worked out. Like Una, she had captivated the Lord of the Forest—

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"With those suppliant looks,  
And voice more beautiful than poet's books."

Another group in plaster, "Paolo and Francesca," by Mr. A. Munro, next claims our attention. Mr. Munro, in this little group, sought to realize the incident described by Dante, or rather by his heroine, Francesca, for she is supposed to relate her own sad story to him, in the following passage, as translated by Cary:—

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"One day  
For our delight, we read of Lancelot,  
How him love thrall'd. Alone we were, and no  
Suspicion near us. Ofttimes by that reading  
Our eyes were drawn together, and the hue  
Fled from our alter'd cheek. But at one point

Alone we fell. When of that smile we read,  
The wished smile, so rapturously kiss'd  
By one so deep in love, then he, who ne'er  
From me shall separate, at once my lips  
All trembling kiss'd. The book and writer both  
Were love's purveyors. In its leaves that day  
We read no more."

We need hardly say a word to point out the difficulties which too obviously surround the treatment of such a subject in sculpture; at least, if it be attempted to represent *all* that the poet conceived of it. One point referred to in the passage, "the hue fled from our alter'd cheek," it is impossible to render through the medium of marble, because it is *never* colourable, and even to express the idea of strong emotion as conveyed through the eyes, is a thing not to be attempted in the plastic art. Nevertheless, Mr. Munro, who is a young artist of very considerable promise, produced a very pretty and graceful composition, though at the same time one which, costume, accessories, and all considered, would have been better adapted for a painting than a work in plaster. As regards expression, he certainly accomplished a great deal—much more than we should have been prepared to expect: the face of Paolo was earnest and impassioned in the extreme: it told of a devouring passion long pent up, first revealing itself; that of Francesca confessed a reciprocity of feeling, but with a modest hesitating reserve, which was admirably true to the more delicate poetry of the situation. Since this group was exhibited, we are glad to understand that Mr. Gladstone has commissioned the artist to execute it in marble.

"Girl Praying," by Mac-Dowall. This very graceful production reflected the highest credit upon Mr. Mac-Dowall's talent. The expression was extremely charming, and the attitude simple and effective. It stood in the southern transept, where it was greatly admired. The "Youth at the Stream," a statue in marble, by J. H. Foley, A.R.A., was one of the most attractive in the Exhibition. It stood in the transept to the east of the

Glass Fountain. As a work of art it was extremely successful in its graceful and poetic character, while for ease of posture and delicacy of execution it might be said to be perfect. It has been remarked that the statuary in the Crystal Palace attracted much more attention from the general public than was expected. This was not surprising. The higher classes were familiar with the kind of sights to be seen in the Crystal Palace; but to the multitude they were new, rare, and surprising. The Exhibition was literally the greatest "sight" recorded in the history of the world, even if we attach to the phrase nothing but its commonplace import in the minds of idlers and "gadabouts." It was in this point of view that it supplied attraction, and, we should think, satiety to the wealthier or more listless class of visitors. Mechanics and operatives went naturally to the rival productions of their own competitors in various parts of the globe. Their observations took a turn of their own; nor would it have been easy, perhaps, to impress a man who had never travelled in search of "sights" with the prodigious magnitude of the specimen before him; but if our tourists and pleasure seekers will but reflect for a moment, they may discover that the capacities of an ordinary life have been just now concentrated into the experience of a fortnight. Not five years' travel nor a thousand pounds could have enabled a man to see what one shilling brought before his eyes; and one of the most striking morals of the Exhibition was that suggested by the astonishing influence which must have been exercised in amassing the collection. The spectacle was intended to be little more than a magnified "exposition" on the original French pattern. It turned out to be such a wonder as the world never saw. We read in Arabian fables that magicians could place before enchanted spectators the visible treasures of the universe. These very treasures were laid bodily at our feet by no other magic than that of national power. Every visitor carried away his own impressions, more or less profound,

correct, or serviceable, as the case might be, but still distinct and characteristic; nor would it be easy to find two persons, even of the same abilities and station, who would give the same account of their sentiments or the same description of the show. There is an education which is not taught by books. It was working out its mission in the Crystal Palace.

From these classical subjects we now turn to one of stern reality, "The Wounded American Indian," by Stephenson. Those who have seen the inimitable representation of the Dying Gladiator, in the gallery of the Capitol at Rome, will, we think, trace in this work a remarkable similarity, both in character and attitude, to that most wonderful statue, which might indeed induce a belief that Mr. Stephenson had drawn his inspiration from that celebrated performance. Be that as it may, he has unquestionably produced a work of great merit. We were told the effort of the sculptor was to give a correct representation of the Indian races of North America. The figure was represented wounded and fallen, thereby typifying the race. While in the act of stringing his bow, he had received the wound; the moment the fatal arrow is felt, he relinquishes the effort and hurriedly pulls it from the wound. In the moment that succeeds, he realises his danger, and his left hand drops powerless, partially clinging to the fatal arrow, while a faintness creeps over him. The right arm instinctively supports the body, and prevents its falling. Beneath the right hand is his own arrow, in his ears are an eagle's claw and a small shell. Sufficient ornaments and implements only have been introduced to give character to the subject. It was the first statue ever executed in American marble. It stood to the north-east of Power's Greek Slave. Is it not suggestive that the Americans, proverbially a *'cute* people, should have so publicly drawn attention to slavery and the extinction of the aborigines of the Far West?

Mr. E. B. Stephens' group of "Satan Vanquished by

St. Michael," which stood on the left in the South Transept, was a composition not without merit, though it certainly did not attain that high poetic character which we look for in works of that class. The subject was severely treated, without, however, its appropriate dignity; the Archangel stood erect, without any attempt at attitudinising, whilst the Enemy of man, whom he had just overthrown, crouched in the dust beneath his feet. There was a total absence of human passion in the expression of the face; a point in strict accordance, perhaps, with the heavenly nature of the personage represented, but which, on the other hand, would impose upon the artist the necessity of realising the supernatural dignity attaching to him—a task in which he was not at all successful. A word with regard to accessorial details. It is certainly recorded that the Archangel brought down a chain from heaven to bind the Serpent; and in a work of sculpture commemorative of the event, some reference might properly be made to it, as being by no means unimportant; but, at the same time, we could have wished that the said chain had not been made quite so much of, and in such hard angular outline as Mr. Stephens employed; that it had been, at most, faintly indicated as encompassing the prostrate Evil Spirit, and not held up in triumph, in the hand of the Archangel. All such efforts at perfectionising petty details are unworthy of art, and betray a want of confidence in its higher resources.

The "Cain," by Jehotte, was a spirited attempt, in plaster, after the school of Michel Angelo,—but crudely wrought out. The catalogue stated that the first murderer was supposed to be exclaiming, "My punishment is greater than I can bear;" but, for this, the attitude was inappropriate. It would have suited better for the first impulse of horror on seeing the dead body of his brother.

We shall resume our remarks on the sculpture of the Great Exhibition at a future opportunity.

## CHAPTER XX.

### FOREIGN AND COLONIAL DEPARTMENTS—*continued.*

RUSSIA—GOLD, SILVER, AND PRECIOUS STONES—RAW MATERIALS—MALACHITE DOORS, ETC.—WORKS OF ART—MANUFACTURES, ETC.—SPAIN—RICH PLATE—TOLEDO BLADES—FURNITURE—MINERAL PRODUCE, ETC. ETC.

THIS immense empire, occupying nearly one-seventh of the terrestrial part of the globe, and one twenty-seventh of its entire surface, was represented at the Exhibition by specimens of her chief agricultural and mineral produce, as well as by the productions of her looms and workshops.

The magnificent candelabra placed at the entrance of their principal department, and the splendid profusion of diamonds, rubies, emeralds, pearls, and turquoises therein exhibited, attested to the wealth and showy magnificence of the Imperial Autocrat, the Emperor of all the Russias. In no country in Europe is there so large a quantity of jewels used as in Russia. The imperial family never travel without an abundant supply of them, to distribute among those whom they deem worthy of their favour. It was not, however, in these gauds and trinkets that the mighty empire of Russia was chiefly represented at the Great Exhibition, but in her vases, her doors of malachite, her specimens of gold, platinum, and iron, the produce of her mines; in the skins, furs, leather, bristles, and tallow, the produce of her numerous herds of cattle; and, above all, in the varied specimens of corn, flax, hemp, &c., the productions of her vast and wide-spreading plains. We shall offer a few remarks as we proceed on various points connected with these raw materials, but we will first describe that portion of the Russian exhibition which was exclusively devoted to the display of the most rare and costly articles, destined for those alone whose wealth enabled them to set no limit to the indulgence of their tastes.

By the pillars at the entrance of this *sanctum sanctorum* of wealth and splendour, stood the two great candelabra we have already alluded to. They were from the manufactory of Krumbigel, of Moscow, and spoke well for the taste and resources of the "frozen Muscovite." They were of richly-gilt bronze, each ten feet in height, and made for fifteen lights, and were valued at £500 a-piece. Looking from the centre aisle into the compartment, the most striking object was the folding doors of malachite, thirteen feet high, panelled and ornamented in gilt bronze. Our readers have probably made acquaintance with malachite as a precious stone, in brooches, jewel-boxes, and other small articles of ornament, but never dreamt of seeing it worked up into a pair of drawing-room doors. The effect was exceedingly beautiful; the brilliant green of the malachite, with its curled waviness, like the pattern of watered silk, and its perfectly polished surface, was heightened by the dead and burnished gold of the panellings and ornaments, and set one imagining in what sort of fairy palace, and with what other furnishing and decoration the room must be fitted to satisfy those who had made their entrance by such precious doors. They were valued at £6,000. The large vases on either side of the compartment were also, pedestals and all, in malachite like the doors, ornamented in gilt bronze, and were valued at from £1,500 to £3,000 a-piece; and to show that a whole suite of apartments might be decked out in the same bright precious stone, there stood to the left, and not far from the doors, a mantelpiece, in Louis Quatorze style, before it ran quite wild in confusion of ornamental form; the fender, hearth, fire-back, and grate, in bronze gilt and burnished gold; the mantelpiece in beautifully-shaded malachite, with just enough of ornament for contrast; and on either side of this splendid fire-place were a table and chair of the same material. The chairs were valued at £120 each, the tables at £400. In the next compartment the malachite (carbonate of copper), was exhibited in the strange-shaped rough lumps in which it comes from the mine, and in

every stage of preparation. It is found in the copper-mines of Siberia and the Ural Mountains, and has lately been met with in equally large pieces, and of not less beauty, in the Burra Burra mines, in Australia. That in the Exhibition was from the mines of Prince Demidoff. The manufacture of articles of malachite is in itself a work of art; and, smooth as the surface seems, it is made up of a multitude of variously-shaped little pieces carefully selected to produce particular patterns, and which in their fitting require the greatest exactitude. In the doors there might have been some 20,000 or 30,000 pieces imbedded in cement, made of the malachite itself. The doors were of wood covered with copper, the malachite being about a quarter of an inch thick. The vases were of three-quarter inch cast iron, and the malachite in the same way inlaid. Nor was this the only precious stone made to serve such large uses in this Russian compartment; there were also upon the left-hand side, near the great candelabrum, three real jasper vases, one of them three feet six inches in height, which excited the admiration of those most skilled in such matters, by the exquisite cutting of its border of leaves, which, as the process is not explained, they have come to the conclusion must have been done by mounting the diamond, the only mineral of sufficient hardness to cut agate, in some specially contrived machine. The value of this vase was not stated, but the cost of the workmanship alone exceeded £700, and the vase could certainly not be under £2,000. These vases were the property of the emperor, and were made at his own manufactory at Katrinburg. The great vase in the centre front was in porcelain, from the imperial manufactory at St. Petersburg, and was valued at £2,500.

To the left and right in front were jewels valued at £40,000, and which were exhibited by M. Bolin and M. Kammerer, both crown jewellers at St. Petersburg. Nothing could exceed their richness and splendour. The plate, which was on another table at the right, and comprised a great variety of articles, was entirely from the

workshop of M. Sizikoff, of Moscow, one candelabrum shown by whom contained two cwt. of silver, and set forth an incident memorable in Russian history. The Duke de Merti, Grand Duke of Muscovy, in a fierce battle with the Tartars, in 1380, fell severely wounded by a blow on the head with a hammer, a main weapon of warfare with the Tartars at that time. The duke, surrounded by his staff of knights in armour, lay under a fir-tree, faint, and, to all appearance, dying, when a soldier of his army galloped up and announced the battle won—the duke revived and recovered. The candelabrum represented the fir-tree and the above incident. On the same side of the compartment was an ebony cabinet, designed by Baron Clott, one of the first artists in the Russian empire. On the top was a bunch of grapes, in amethyst, so modelled that, as the light fell upon them, they seemed to show the very juice of the real fruit of the mountain ash in coral. In the background were seen specimens of inlaying in wood for floors; a Warwick vase, in hammered iron, from Warsaw; a curious carpet, very bright in its colours and effect, made in squares of squirrel-skin, surrounded each by a border of needlework; and near this stood a cabinet, made by M. Yanebs, of St. Petersburg, in light wood, with porcelain medallions, from the imperial manufactory, valued at £500, and a second porcelain vase of azure and gold, from the same works.

Almost all the articles exhibited in this Northern Bay were the produce of a system, almost universal among the monarchies of Europe, of carrying on royal or national manufactories, as a matter of luxury and as an example of taste. Such in France are the national manufactories of Gobelins tapestry, of Beauvais carpets, and Sèvres china; in Prussia, of iron-casting and porcelain; in Saxony, of porcelain; and in Tuscany, of mosaic in *pietra dura*. To several of these establishments, particularly in Russia, and in the Gobelins establishment in France, schools for instruction in drawing and painting, as applied to manufactures, are attached for the benefit and the due training of

workmen. In England, it is with difficulty that money is obtained for schools of design; but although we wisely rely on private enterprise for manufacturing excellence, it would pay us to devote more money to cultivate taste.

On leaving the splendid department dedicated to luxury and the fine arts, we found in the small avenue to the north some more real and utilitarian specimens of Russian industry, in a set of very handsome carriages, of a peculiar national form. These were the Russian drosky, equally available on wheels, or in the winter on runners, and the favourite carriage of Russian gentlemen. They were on four wheels, very low, with a strong iron forked perch, and a double body, the first of which either held one or two persons abreast. There were specimens of both kinds. The other merely held a seat for the driver, who sits close upon his horse or horses; when a pair are used, the correct thing is for a shaft-horse to trot, while the second, harnessed to an outrigger, gambols at a canter beside him. They were very stylish, and the workmanship deserved unqualified praise, except in the shafts, which were heavy and clumsy. The leather splash-boards round the wheels were particularly well arranged; no stitching appeared, and they looked like pieces of solid japan; the lining and the varnishing were equally well finished. If the wood was sound and well seasoned, they were not dear at the price set upon them—£47. A set of harness in the large room was also of a fashion peculiar to Russia. It is difficult to explain, to those who have never seen them in use, the arrangement of a great birchwood bow, which is an indispensable ornament of Russian harness, and from which bells are suspended over the horse's neck.

The staples which constitute the export trade of Russia were exhibited in great variety; one part of the walls was hung with leather, including choice specimens of the "Russia" dear to book collectors. Amongst the boots and shoes were a pair of dress-boots, made of the thinnest and best calf leather we ever remember to have seen. It was as soft and flexible as kid, but stronger. We were informed

that the material is much used in Russia for full dress boots. If it can be delivered here at a reasonable price, a large demand is certain. On the same counter as the leather were a number of stockings, shoes, and other articles made of felt by the Russian peasantry. A very curious manufacture, indeed, well worth the examination of the trade. Each article seemed felted separately, and made solid yet soft. On the opposite table were basins, jugs, cups, helmets of the same material japanned inside and out. They were light, tough, and not to be broken. A wash-hand jug and basin were rather dear (17s.), but they would be famous articles for sea voyages. Gutta percha has been tried for that purpose, but it melts in tropical climates.

A trophy of sheafs of seed-bearing agricultural produce, very elegantly arranged, containing every kind of wheat, barley, oats, rye, buckwheat, flax, hemp, peas, and beans, grown in the Russian dominions, occupied the centre of a counter, round which were arranged in bowls the seed and flour of these articles. Among them our cooks may find it worth while to try a small kind of dried pea for winter use, in soups, of a very sweet taste. On the walls around were specimens of the famous Russian hems, raw and manufactured, with canvass, and ropes, and twine, which, with grain and tallow, have been too well known to our merchants for this last hundred years to need further notice. The dried provisions included *caviare*, dried sturgeon, isinglass, a substance resembling isinglass made up in the shape of a rude whip, which is obtained from a fish called the *Vesiga*, and used in Russia to make pies. But, perhaps, the article most likely to become a new staple of commerce, was the *glaze*, then imported, as we were informed, for the first time. This article, so much used in this country for making sausages and soups, in clubs, hotels, and great houses, is obtained in Russia by boiling down the flesh of horned cattle, which, on the plains of the interior, are only valuable for their hides and tallow. Anything that can be made out of concentrated meat or

glaze is so much additional profit. But it is an operation which requires care—a little burning will spoil the whole boiling. Liebig gives directions for the operation in his last work: as commonly conducted, the product affords very little nourishment.

The specimens of iron and copper, in ore and in a manufactured state, were numerous. The iron, some of which was of a very fine quality, is a matter of interest to us, because Russia, in conjunction with Spain and Sweden, supplied most of the iron consumed in this country for more than one hundred years, between the time that the timber for charcoal in Surrey, Sussex, Kent, Staffordshire, and Worcestershire, was exhausted; and the successful application of coal to smelting iron, by Abraham Darby, at the Colebrook Dale Works, in 1713, and the application of the use of blowing cylinders, instead of bellows, at the Carron Works, set up by Smeaton in 1760. Our connexion with the Russian iron is of very ancient date. In 1569 the English obtained, by treaty, the right of seeking for and smelting iron ore, on condition that they should teach the Russians the art of smelting this metal, and pay, on the exportation of every pound, one halfpenny.

Every branch of mining received great development under Peter the Great, who seems to have neglected no branch of material prosperity. It was under his reign and direct patronage that the Demidoff family rose to importance as miners, and obtained the property which has rendered them ever since one of the wealthiest families in Europe. Up to 1784, Great Britain imported a continually increasing quantity of iron from Russia, which in that year amounted to 40,000 tons; after that period, in consequence of improvements in machinery for smelting by coal, the importation gradually declined to about 5,000 tons in 1805, and continued at that figure up to 1837, and, probably, is about the same now, being all of one quality in the trade, called C. C. N. D. old sable iron, which is used for the manufacture of steel.

The fire-arms and white-arms exhibited had all been

made at one of the four crown manufactories, where the work is done, under the inspection of government officers, by serfs of the crown. The oldest manufactory is at Tula, where, besides muskets and side-arms, the iron-work of horse harness, iron bedsteads, files, chains, &c., are made. This establishment was burnt in 1834, according to the rumour of the day, by the workmen, who hoped to get rid of the forced labour imposed on them by the ceaseless wars of the emperor in Turkey, Persia, and the Caucasus. Under the Russian royal factory system, increased work does not give increased wages. But the Tula establishment was rebuilt.

In the North Gallery, the emperor exhibited, with other furs, a black cloak made from the neck of the silver fox, which he valued at £3,500; this valuation brought out a letter from Mr. Nicholay, the well-known furrier, who offered to make a finer cloak for £1,000, and explained that black and silver fox skins, so much valued in Russia, and so little used here, are chiefly imported into London from the territories of the Hudson's Bay Company, and then purchased up for the express purpose of "being smuggled as occasion may offer." What a commentary on the Russian protective system!

In the back of the same case as the furs, were two splendid specimens of twilled shawls, by a Cossack woman, from white goats' hair, of wonderful fineness. One of these shawls was the property of the empress, and justly valued at the price of Brussels lace. Russian manufactures are for the most part inferior and dear; while mineral, vegetable, and animal produce could be supplied in unlimited quantities, at a profit, if roads were made and facilities given to trade. But Russia is essentially a military country, prepared to take advantage of events, and probably the emperor considers that a large trade might produce inconveniently pacific tendencies in his own land-owning nobles.

We will now, by a special privilege granted to every one who visited the Palace of Wonders, of rapid transi-

tion even from the far east to the remote west, pass at once to a different region of the globe; and leaving the numerous tribes, civilized or barbarous, of the wide extended empire, enter upon the territories of the most Christian king—the country so celebrated for love and war—the land of song, and of the chivalrous hidalgo; and more than all, the land wherein the incomparable knight of La Mancha, and his no less incomparable squire, pursued their romantic adventures.

The intelligent visitor to the Spanish court in the Crystal Palace could hardly glance over its scant collection without some regretful reflections on the mutability of human greatness, and the liability to decadence in all great and powerful states. When he thinks that the comparatively unimportant objects that were there arranged, "few and far between," and which only served to reveal the nakedness of the land, were all that could be sent forth by the people who overthrew the great and gallant Moors, who colonized America, who received into their laps all the gold of Mexico, and all the silver of Peru, who equipped the world-famed armada, happily without success, to "fright this isle from its propriety;" the country of Ferdinand and Isabella, the kingdom of Charles V., the birthplace of the Cid and of Gonsalvo de Cordova, and the foster-land of Columbus,—how cheap must he not hold the result of mere military glory, and the gains of conquest and rapine, as compared with the honest profits of legitimate commerce, and the development of the industrial energies, as exemplified in the career of our own happy land. Yet there is hope for Spain. Nature, always young, is as bountiful to that country as when she fed the legions of imperial Rome, or tempted the invasion of the Saracens,—or when, at a later period, the invader himself, hanging up his sword and buckler, and betaking himself to the arts of peace, converted the whole surface of the country into one vast garden, glowing with the orange and the grape, and decorated its cities with those light and graceful

arabesques which have made the Alhambra one of the architectural wonders of the world. The wheat of Spain is as fine, her olives are as plentiful and well-flavoured, her timber is as abundant and valuable, as when she victualled vast fleets for discovery or for conquest, or built those leviathans of the deep which gave Ferrol the foremost place among the naval arsenals of Europe. What is better still, her men have not, in the main, deteriorated. Protracted political convulsions, always demoralizing, may have lowered the standard of patriotic feeling and of manly energy in her large cities, where also the strong infusion of Jewish blood has, no doubt, had its effect in making avarice take the place of nationality; but her rural peasantry, her mountaineers, and her muleteers, are the same brown manly fellows as ever, living frugally, walking proudly, and ready at any moment to play over again the guerilla game of the Peninsular war, and to teach the invaders that the spirit of old Gothic Spain is "not dead, but sleepeth," and as dangerous when aroused as at any former period of her history.

Foremost in the Spanish Court stood the silver-gilt tabernacle from Madrid, a gorgeous specimen of ecclesiastical plate, showing the direction in which Peninsular art received its greatest stimulus. The world-famous blades of Toledo also held a conspicuous place in the proud display of their vaunted armoury. There were several specimens of the black lace of the country, in robes and veils, with which Byron was so enchanted, when worn "by an Andalusian girl going to mass," and some gold and silver stuffs used in the sacerdotal costumes of her innumerable priests. In the more substantial manufactures there were specimens of coarse woollen cloth, but not so many nor so good as one might have expected in a country where the most voluminous of cloaks is an almost universal article of costume. But we believe the fact to be that the best Spanish cloaks are made of French or English cloths; indeed we know that in our own woollen districts there are particular descriptions made expressly for the Spanish

and Italian markets. The priests of both countries affect a certain tinge of "blue black" in their ordinary costume, and our English manufacturers, with an expansive liberality that does them infinite credit, contrive to hit their reverences' taste to a shade. The only specimens of metal work in addition to the arms which came from Spain, were a few ornamental iron bedsteads, which were certainly very creditable specimens of Spanish workmanship, and might have taken their place beside some of the best articles of the kind made in this country. Another class of Spanish artificial productions that remains to be noticed was the inlaid cabinet work, of which the *piece de resistance* was the octagonal table sent by Perez of Barcelona. As a monument of patient industry it was certainly wonderful, containing, as we are told, three millions of pieces, worked up into a design of which the most prominent feature was the shield with the arms of England in the centre. The general effect hardly justified the labour bestowed in the construction, the decoration being so minute as to require a powerful magnifying glass to show off its beauties. There were some other specimens of furniture, but they do not require any special notice. The centre of the court was devoted to a large case containing specimens of the minerals and cereals of Spain, in both of which that country is superlatively rich, and in describing which we can hardly do better than quote M. Ramon de la Sagra, whose "*Notes sur les Produits Espagnols*," enter very fully into the subject. The writer commences by complaining that "Les échantillons envoyés par les différentes contrées de l'Espagne et ses colonies à l'exposition de Londres, ne peuvent donner qu'une faible idée de ses richesses naturelles," and affirms that, with the exception of some choice mineral specimens, the articles exhibited were insignificant and ill chosen. He instances the wonderful quicksilver mines of Almaden, of which the specimen sent over "semble plutôt faite pour la boîte d'un élève, que pour donner une idée approximative de ses merveilleuses galeries." The writer also complains that

the exhibitors wanted variety in their specimens, and that they gave more importance to metallic minerals than to combustibles, in which the mineral wealth of Spain is most prominently developed. M. Ramon, in his classification, first calls attention to the vast beds of coal, which he states are to be found in the Asturias and various other parts of the kingdom, and gives tables of the expense at which the article can be delivered at Santander and other places on the coast. But it is to be regretted that his calculations are made in Spanish weights and Spanish money, and would, therefore, hardly be capable of comparison by the general English reader. He hopes for a glorious future for this trade when the railroads of Alar and Santander, and of Madrid and Valladolid, shall be opened to public traffic. Sulphur, he states, abounds in Murcia and in Salamanca; and that the recently-introduced article of commerce, asphalte, has been discovered in large quantities in the province of Loria, and is now worked by a company. Of the salts to be found in Spain, M. Ramon gives a long catalogue, and proceeds to the metals, in which he very properly gives the first place to iron, the most useful. Leon, he says, abounds with this metal of first necessity, where also is to be found kaolin, that indispensable ingredient in ceramic manufactures. Abundant mines exist also in Alava and Guipuscoa, and specimens of their produce were to be seen in the gallery of the Crystal Palace, in the shape of two pieces of cannon manufactured by the Carlists, in the village of Onate, in the year 1837. The riches of Spain in lead are, according to our author, really surprising, there being hardly a province in which it may not be found in abundance. Copper, zinc, and tin, antimony, nickel, and cobalt, are also among the mineral treasures of Spain; and, lastly, gold, which is beginning to be sought for in the beds of various rivers.

## CHAPTER XXI.

INDUSTRY AIDED BY SCIENCE — ARTIFICIAL LIGHT — PHOTOGRAPHY — DAGUERREOTYPES — CELESTIAL OBJECTS — THE MOON — FALLS OF NIAGARA — APPLICATION TO METEOROLOGICAL SCIENCE — ROYAL OBSERVATORY — COLOURED DAGUERREOTYPES.

WHEN, according to the ancient Greek fable, Prometheus drew down fire from heaven to inspire with the breath of life the image he had formed, the writer of that myth little imagined to what purposes the application of light from the all-vivifying rays of the sun would, in future ages, be employed in the world of science and of art—purposes which impart a vivifying principle and activity to operations which the utmost labour and ingenuity of man could in no other way accomplish.

For the following remarks, which we have selected from some papers which appeared in one of our leading journals, we are indebted to the learned pen of the philosophic Dr. Lardner, and which we shall forthwith, without further apology, submit to the consideration of our readers.

And, first, with respect to artificial light.—Marvellous are the uses, says the learned Doctor, to which science has rendered heat subservient; those which have been obtained from light by the combination of the researches of the mechanical philosopher have not been less striking. Ready-made flame is fabricated in vast establishments, on an enormous scale, and transmitted in subterranean pipes through the streets and into the buildings and dwelling-houses, where, after the close of the natural day, an artificial day is thus created, guiding us in the pursuit of business or of pleasure, and adding to the sum of life by rendering hours pleasant and useful, which must, in the absence of artificial light, have been lost in torpor, or in sleep. It is supplied according to individual wants, in measured quantity, and at every door an automaton is

stationed, by which a faithful register is kept of the quantity delivered from hour to hour.

Flame, which is in most cases the source of artificial light, is gas rendered white hot. The gas, such as is prepared for the purposes of illumination, contains, in the latent state, the heat which, in the process of combustion, renders it incandescent. The moment combustion commences, the gas entering into combination with the oxygen, which is one of the constituents of the atmosphere, the heat which was till then latent becomes sensible, and affecting the gas itself while combining with the oxygen, renders it *white-hot*. Lamps in which artificial light is produced by means of a liquid combustible, may be reduced to two classes: one in which the liquid is drawn to the wick by capillary attraction, and the other in which it is propelled by mechanic agency. It is evident that in the former the distance of the reservoir from the wick must be more limited than in the latter. Hence we find that the mechanical lamps, known as Carcels and Moderators, are more elegant in their form than those which, depending on capillary action, have oil vessels of greater or less magnitude immediately under the flame, and which therefore cannot be sinumbral. Of the capillary lamps, in which oil or fatty liquids are burnt, the most simple is that called the solar lamp; but by far the most brilliant in its illuminating power is one of recent introduction, called the camphine-lamp.

Of the mechanical lamps exhibited, especially in the foreign department, the most efficient and the most elegant in its form was the Carcel lamp. The more scientific expedients for the production of artificial light depend, in general, on imparting such an intense heat to a solid body as to render it vividly incandescent, without, however, liquefying it or causing its combustion. The expedient of this class which is best known is the oxy-hydrogen light, by which the microscope and lanterns for dissolving views, exhibited in the Polytechnic Institution, are illuminated, and which were found in various improved forms in the

Exhibition. We refer more particularly to an apparatus improved by the Reverend Mr. Beechy, and exhibited by Messrs. Abraham and Co., Liverpool.

The apparatus for the production of the electric light, which is still more intense than the oxy-hydrogen light, and produced under conditions which present greater probability of being ultimately adapted to economical uses, were exhibited in different forms by Messrs. Deleuil and Co., and by Messrs. Duboscq, of Paris. This light is of the most intense splendour,—so much so, that it cannot be looked at without protecting the eye with coloured glasses. The colour and quality of the light is similar to that of the sun, as is proved by the fact, that when it is analysed by the prism it gives the same component parts. It is only just here to state, that the merit of the first application of the electric light to the microscope, and to the general application of optical phenomena, is due to M. Leon Foucault, who has lately obtained a world-wide celebrity by his beautiful experimental test of the rotation of the earth.

#### PHOTOGRAPHY.

It resulted, from scientific researches on the properties of solar light, that certain metallic preparations were affected in a peculiar manner by being exposed to various degrees of light and shade. This hint was not lost. An individual, whose name has since become memorable, M. Daguerre, thought that as engraving consisted of nothing but the representation of objects by means of incisions on a metallic plate, corresponding to the lights and shadows of the objects represented, and as these same lights and shades were shown, by the discoveries of science, to produce on metals specific effects, in the exact proportion of their intensities, there could be no reason why the objects to be represented should not be made to *engrave themselves* on plates properly prepared! Hence arose the beautiful art now become so universally useful, and called after its inventor, *Daguerreotype*.

The object of which it is desired to produce a representation, is placed before an optical instrument, with which every one is familiar as the camera-obscura. An exact representation of it, on a scale reduced in any required proportion, is thus formed upon a plate of ground-glass, so that it may be viewed by the operator, who can thus adjust the instrument in such a manner as to obtain an exact picture of it. If it be desired to make a portrait, the effect of the posture of the sitter can thus be seen, and the most favourable position ascertained before the process is commenced.

When the light is favourable, four or five seconds are sufficient to produce the desired effect by the processes which have been hitherto generally adopted. According as it is less intense, the necessary time may be greater, but should never exceed a minute. One of the defects of Daguerreotype, as applied to portraiture, arises from the impossibility of bringing the entire person of the sitter at once into focus. To render this possible, it would be necessary that every part of the person should be at precisely the same distance from the lens of the camera, a condition which obviously cannot be fulfilled. It happens, consequently, that those parts which are nearest to the lens, as may be particularly remarked with respect to the hands, will be represented on a scale a little greater than those which are most distant; and if the instrument be adjusted so as to bring the nearer into very exact focus, the more distant will be proportionably out of focus.

These defects cannot be removed, but they may be so much mitigated as to be imperceptible. By using larger lenses the camera can be placed at a considerable distance from the sitter, without inconveniently diminishing the size of the picture. By this expedient the difference between the distances of different points of the sitter from the lens will bear so small a proportion to the whole distance, that the amount of distortion arising from the cause just mentioned may be rendered almost imperceptible. Large lenses, however, when good in quality, are expensive,

and it is only the more extensively-employed practitioners in this business that can afford to employ them.

The discovery of this beautiful application of the chemical properties of light is of very recent date. Efforts to fix illuminated images by means of the chemical agency of light, were made by Wedgwood and Davy as early as 1802, but without success, no preparation being discovered sufficiently sensitive to be affected by the subdued light of the camera. Sir H. Davy obtained a faint impression of the illuminated image produced in a solar microscope; but being unacquainted with any method of suspending the further action of light on the picture, no permanently perfect effect resulted, and the subject was laid aside. In the fourteen years which elapsed between 1814 and 1828, the labours of M. Daguerre and M. Niepce were directed to the solution of the problem.

In 1827, a memoir was presented by the latter to the Royal Society, accompanied by several specimens of *heliographs*,—*sun-drawn* pictures. These, which are still extant, show that M. Niepce was acquainted with a method of forming pictures, by which the lights and shadows are represented as in nature; and when so formed, of rendering the picture proof against the further effects of light. M. Niepce, however, having concealed his processes, describing only the results, the society could not, according to its rules, admit his memoir into the Transactions. The surfaces upon which he produced his pictures were those of glass, copper plated with silver, and well polished tin. Those upon which M. Daguerre produced his first pictures, were paper impregnated with nitrate of silver. About six months before the disclosure of the processes of Daguerre and Niepce, Mr. Fox Talbot read before the Royal Society a memoir, in which he explained his photographic researches, and showed the manner in which he produced upon paper, rendered sensitive by chemical preparation, photographic pictures.

The vast number of beautiful sun-drawn pictures, on various sorts of surfaces, which were presented in the

Exhibition, demonstrate how great and how rapid has been the progress of the art from the date of its invention. These results are invariably denominated either from the name of their inventor or discoverer, as daguerreotype and talbotype, or from the chemical principle by which the surface destined to receive the picture is rendered sensitive to light, as cyanotype, chrysotype, chromotype.

Pictures produced by the photographic processes are of two kinds : first, positive pictures, in which the lights and shadows correspond with those of the object represented ; and second, negative pictures, in which the lights and shadows are reversed ; the lights being represented by shadows, and the shadows by lights. In the talbotype process, as it is sometimes called, the picture produced in the camera is usually negative. This picture being laid upon another paper, coated with chloride of silver, and then exposed in sunshine, a positive picture, corresponding exactly with the negative one, is obtained. Mr. Samuel Butler, of Peterborough, obtained a council medal for a beautiful series of photographic pictures obtained by this process, called photographic printing. The pictures represented scenes in and near Peterborough and Bury St. Edmunds.

The application of glass to photography has lately occupied many experimentalists, and more especially Sir J. Herschel. The surface of the glass is *albumenised* by a coating of a solution of the iodine of potassium and the white of egg. This having been carefully dried, is washed with a solution of the gallo nitrate of silver, previously to being placed in the camera, by which it is rendered highly sensitive to light. Messrs. Ross and Thompson obtained a council medal for this improvement. Among the numerous uses to which this invention is applicable, examples were presented in the Exhibition of its power in delineating, with incontestable accuracy, the lineaments of celestial objects. Thus, photographic images of the sun and moon were exhibited ; also images of the solar spectrum, produced by a prism on surfaces prepared with

iodide and bromo-iodide of silver. The application of this process to produce permanent pictures of astronomical phenomena, so transitory in their appearance as to render any direct and accurate observation of them difficult or impracticable, such, for example, as certain appearances in the solar eclipses, would be highly advantageous.

Among the most interesting objects presented, were daguerreotypes of the clouds, taken in boisterous weather, forming an instructive study, not only for the meteorologist, but the artist. In photography, the American department was peculiarly rich; and it is but just to state, that many important improvements in the details of photographic processes have been supplied by the skill and unwearied experimental research of our transatlantic cousins.

Mr. J. Whipple, of Boston, exhibited several remarkable daguerreotypes, among which one of the moon was especially remarkable. In this picture, taken by means of a large equatoreal, the lineaments of the lunar surface were very beautifully displayed. Mr. Bond, another American, exhibited at one of the late meetings of the association, several daguerreotypes of the moon, taken with the twenty-three feet equatoreal of the Cambridge University (United States) Observatory. Mr. Bond, however, stated, that although very steady, the instrument was not sufficiently so to give pictures with very high powers. Sir David Brewster stated, that if daguerreotypes of similar magnitude had been taken on transparent sheets of gelantine paper, and so placed before a telescope as to subtend an angle of half a degree, they would assume the same appearance as the moon itself.

Mr. J. H. Whitehurst, of Baltimore, exhibited some beautiful daguerreotypes of the Falls of Niagara. The cloud of white spray which rises from the base of the fall, and the white sheets of foam on the water, contrasted with the trees and the surrounding scenery, produced a remarkable effect. It is generally imagined that the motion of the water and of the spray would render a dis-

inct picture by daguerreotype impracticable. In practice, however, this is not found to be attended with any injurious effect upon the result.

One of the most striking, and we may add, unlooked for uses of the photographic art, is its application to the constructing of a self-registering apparatus for meteorological phenomena, an invention of Mr. Charles Brooke, of London, who has been most deservedly rewarded for it by the council medal. It is known to all who take an interest in physical science, that the most important laws which prevail in atmospherical and terrestrial phenomena, are intimately related to the horary and diurnal variations of the barometer, thermometer, hygrometer, the declination-needle, dipping-needle, and, in fine, to the changes which continually affect all those delicate and sensitive instruments, which the skill and genius of scientific men have contrived, to indicate the succession of meteorological phenomena manifested around us. To obtain a perfect record of the indications of these several instruments, it would be necessary that an observer should be stationed at each of them continually, night and day, in all seasons, to note down their changes, which are continual, and sometimes sudden, such as cannot be foreseen or anticipated. These changes, moreover, are in some cases so rapid and fleeting, as to be incapable of exact estimation or measurement, even by the most vigilant and practised observers. The object of the invention of Mr. Brooke is, to make the phenomena keep a constant and unerring *record of themselves* in photographic writing. Without attempting a detailed description of this very beautiful automatic apparatus, which, besides, could not be made intelligible without several complicated drawings, the general principle by which its indications are made, may be briefly and clearly explained.

A pencil of light brought to a focus by spherical or cylindrical lenses, or reflectors, is so governed, that its point or focus has motion identical with, or bearing a known proportion to, the motion of part of the instrument

which affords the indications to be registered. Thus, if the instrument be a magnetic needle, the axis of the lens or speculum is made to coincide with, or make a known and constant angle with the needle, and therefore, to participate in its movements. The focus of the pencil, refracted or reflected, receives a corresponding motion. If it be a column of mercury, as in the case of a barometer or thermometer, the direction of the pencil of light is varied, either by means of a float, which rises and falls with the mercurial column, or by transmitting the light through the tube, so as to produce the shadow of the column, in which case the movement of the shadow will be registered. The focus of the luminous pencil is made to fall upon a sheet of photographic paper; and if both it and the paper were stationary, a spot would be produced upon the paper at the place where the focus falls upon it. If, owing to the variation of the instrument, whose indications are to be recorded, the focus of the luminous paper moves, a line will be traced on the photographic paper, the length of which will bear a known relation to the variation of the instrument. Thus, if it be a magnetic needle, a variation of one degree east or west in its direction, may impart a motion of an inch right or left to the focus of the luminous pencil, and a line of corresponding length would be traced upon the photographic paper. But by this means nothing would be recorded, except the extreme variation of the needle, in a given time. An observer would still be necessary, and nothing would be accomplished more than is already attained by the self-registering thermometers, which show the maximum and minimum temperatures indicated during a given interval. The apparatus is, however, rendered perfect by rolling the photographic paper on a cylinder, which is moved by clock-work, so that a known length of the paper moves under the focus of the luminous pencil in a given time. When the focus of the pencil is stationary, a straight line is traced on the paper, in a direction at right angles to the motion of the paper, and therefore parallel to the axis

of the cylinder; but when the focus moves, as usually happens, to the right and left alternately, an undulating curve is traced upon the paper, the distances of the points of which, from a known base line (also traced upon the paper,) show not only the particular minute and second at which each change took place, but the actual state of the instrument at that moment.

In this way, the heights of the barometer and thermometer, the variations of the declination and dipping needles, the directions of the wind-vane, and, in fine, the indications of all other meteorological instruments, are faithfully and continually registered from minute to minute, and from hour to hour, by night and by day, in summer and winter, and in all positions which it may be necessary to give the instrument of observation, whether on the summits of lofty towers or mountains, in the caves of the observatory, or in the workings of mines, hundreds or thousands of feet above or below the common surface, in the absence, and independent of any other care or interference on the part of an observer, save that which is necessary from time to time to supply this ever-wakeful and ever-active scribe with a fresh supply of paper.

An apparatus, constructed in this manner, has been adopted for registering the meteorological indications of the instruments at the Royal Observatory at Greenwich, with the greatest advantage. Since its introduction, the staff of observers has been reduced in number, and the fatiguing process of nocturnal observation has been altogether superseded. Specimens of the registers obtained by this apparatus were exhibited in the Crystal Palace, including a lithographic fac-simile of one day's work of all the instruments.

There is no question connected with photography which the public regards with so much interest, as that which refers to the possibility or probability of producing sun-drawn pictures of objects in their natural colours. The fact which has been established, from a variety of experiments, that the rays by which photographic pictures are

produced, are rays of *dark light*, and are distinct from colorific rays, are certainly unfavourable, *primâ facie*, to this expectation. Nevertheless, it is certain that within the last two years Sir John Herschel succeeded in drawing a coloured picture of the prismatic spectrum; and, in a recent letter addressed by him to Professor Hunt, he affirms that he had specimens of coloured pictures of the spectrum, in light colours upon a dark ground; and adds, at present he is not prepared to say that this will prove an available process for coloured photographs, *though it brings the hope nearer*.

Professor Hunt himself says, that he has obtained beautiful coloured pictures of the spectrum upon daguerreotype iodidated tablets, on which the colours had peculiar softness and brilliancy. M. Edmund Bequerel is stated to have obtained, recently, bright impressions in colours. Mr. Hill, of New York, affirms that he has obtained more than fifty pictures from nature, in all the tints of natural colouration. The process by which this is said to have been effected is not disclosed, but is said to be a modification of daguerreotype, one material, however, altogether new, having been introduced. It is said that the process will be made public so soon as the manipulatory details have been perfected.

Although our limits exclude us from entering into the details of some other wondrous facts, which the untiring researches of scientific men have disclosed in this department of physics, we must not omit to mention that M. Moser, of Königsberg, has shown that light constantly emanates from all bodies, even in *complete darkness*, and that when placed near each other, they receive upon their surfaces reciprocally *pictures* of each other. These photographic pictures, however, are invisible, and continue to be so until they are developed by the application of certain vapours, such as that of water, mercury, iodine, &c. These marvellous discoveries of M. Moser have been fully confirmed by other more recent enquirers. Attempts have been recently made, with more or less

success, to remove the metallic or *leaden* hue, which has been found disagreeable in daguerreotype portraits. This is effected by colouring them, by means of dry colours rubbed into the incisions made by the action of the light. These coloured daguerreotypes, though more open to objection on artistical grounds, are, nevertheless, decidedly popular, when judiciously executed. Artists, and especially miniature painters, are naturally opposed to daguerreotypes. The *artist* can soften down defects, and present the sitter under the most favourable aspect. The *sun*, however, is no flatterer, and gives the lineaments as they exist, with the most inexorable fidelity, and the most cruel precision.

Nevertheless, it is known that some of the most eminent portrait-painters, those whose productions have raised them above petty feelings, do avail themselves of the aid of daguerreotypes, where well-executed representations of that kind are attainable, and they see in this no more degradation of their art, than a sculptor finds in using a *cast* of the subject which his chisel is about to reproduce.

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## CHAPTER XXII.

ORNAMENTAL SILVER—ITS EXTRAORDINARY PROFUSION—  
FRENCH AND ENGLISH ARTISTS—VARIETY OF SPECIMENS  
DESCRIBED—VINDICATION OF ENGLISH TASTE, ETC. ETC.

FAR down in the depths of Laxey Glen, in the Isle of Man, and overshadowed by the mountain of Snaefell, are some of the most valuable lead mines in the United Kingdom. Here, amid the green glory of nature, and with the solitude and stillness engendered by the constant contemplation of mountain scenery, clinging around them like a second nature, men work in bringing the ore from the

bowels of the dark earth. This lead ore contains a large per centage of silver, which is extracted from the baser metal by a peculiar process, and specimens of which silver were to be found in the Exhibition. Other masses of silver ore, from Ireland, Cornwall, and countries far over sea, were also shown. A large proportion of the silver of commerce is obtained from the ores of other metals, and from these therefore proceeded the rich display of plate which was to be seen in various parts of the Exhibition.

The brilliant array of wrought, chiselled, and embossed silver-work collected throughout the principal compartments of the Great Exhibition, seemed to indicate that this noble art has been shorn of none of its pristine lustre, since the days when kings and princes, popes and cardinals, were sole patrons of the handicraftsman. Precisely three centuries have elapsed since the art of chiselling silver was at its zenith. On looking round and seeing the prodigious number and beauty of the works exhibited, one almost fancied that the many hammers which beat in such unison at the command of Cellini in the "Petit Nesle," had never ceased to resound on the banks of the Seine. England, on her side, strove with the wondrous aid of science to keep up the illusion, particularly by the dazzling brightness with which she invests the precious metals. In both England and France were found tacit acknowledgments of the eminent fitness of the Renaissance style of workmanship over all others, especially the classical, which is just at present under a complete ban. If we inquire further into the possible cause from which has arisen the present taste for all that appertains to the sixteenth century, we find that, as has ever been the case, the minor arts are influenced by the prevalent taste in architecture; as it is a fundamental principle of ornamentation that the component parts which serve to adorn any structure, even its furniture, should necessarily partake somewhat of its character. To Mr. Chenavard, patronised by the late Duke of Orleans, and an able architect, the French ascribe the honour of driving them out of the

classical slough in which Gallic art was so long imbedded. The British silversmith, on the contrary, has seldom allowed himself to be influenced by the fluctuations of fashion, but has steadily, perhaps too steadily, adhered to time-honoured traditions and old sculptural forms. We fancy we recognise the hand of Flaxman even to this day, with its pure but somewhat quaker-like conceptions. One cannot be too thankful that the animal and vegetable kingdom should have been the only source of inspiration; or it is difficult to conceive all the vagaries and waste of metal which the straight lines of our perpendicular architecture and its Flamboyant traceries might have led us to. But if timidity has hitherto been the besetting sin, there is at present rather an opposite tendency, which is evinced in the somewhat audacious rejection of all wholesome rule. Silver is expanded over large surfaces, and made to branch in large chandeliers which would have made the old artificers stare at the lavish expenditure of the precious metal. We believe it is no exaggeration to say that the compartment of Messrs. Hunt and Roskell, late Storr and Mortimer, alone contained no less than three tons' weight of silver.

It was almost a relief to turn from the precious stones, whose intrinsic value escapes mental evaluation, to the more tangible merits of human workmanship. Contrasted with the bright and finished groups in silver, two works, executed by A. Vechte, in mingled iron and silver, stood out prominently by their subdued tones. The first was a shield, which, though unfinished, promised to be a most exquisite piece of embossed workmanship. It represented Shakspeare, Milton, and Newton, surrounded by their embodied conceptions. The style of the figures was a singular medley of Raphael and Buonarroti's designs; that is, rather calling to mind the conceptions of the great Italians than closely adhering to them. The same might be said of the "Vase of Etruscan form," also executed by the same artist, and representing Jupiter hurling thunder at the Titanic host. The anatomy was worked out in a

manner which would bear extension on the largest scale. Vases, salvers, and centre ornaments, presentation cups, &c., filled up the remaining portion. Messrs. R. and S. Garrard shone in bellicose groups, executed mainly in entire relief by the able designer, Mr. Cotterill, who identified himself with bull fights, boar hunts, and hunting meetings. Ever full of spirit, his groups were sometimes marred by a want of finesse in detail-work. Mr. Cotterill was too much at the mercy of the polisher; we need only point at the otherwise pleasant performance of the rider entrapping the wild horse by the lasso. A perforated chandelier attracted as much notice by its size and polish as the "Brassey testimonial" by its massive effect. In the assembled company of engineers whose portraits were here gracefully collected together, we fancied we saw the heroes of speed, which had its tardy counterpart in the progresses of Elizabeth, who was evidently a favourite with the silversmith. There were two effigies of her; the first had been somewhat modernized by B. Marochetti, for Mrs. Hancock, who had other meritorious productions on view. The next, of somewhat exorbitant dimensions for silver, had been worked under the direction of Mr. Morel, from the great seal of the time. The way in which the minutiae of dress had been worked showed how far embossed work may go. Those who were curious in technical peculiarities might notice with satisfaction that there was no trace of subsequent soldering, her majesty being daintily fitted, as be seemed her precious person, on the barb or state horse. Her weight was considerably above a thousand ounces. Mr. Morel also exhibited a centre-piece of Children Playing with a Panther, which displayed all the fancy of Poussin in the juvenile attendants of Bacchus. The frosted imitation of the flesh texture was novel and pleasing. Caps of agate and lapis-lazuli of unusual dimensions, and convivial weapons, showed combined taste and art. As defenders of the powers of electro-metallurgy, Messrs. Elkington and Mason, of course, reigned supreme. It is well known that in the ordinary methods of electro-

plating it is usual to construct a plated article as far as possible from plated sheet metal, while the edges and ornamental parts are completed by soldering thereto parts either stamped in plated metal or in silver. By this method of manufacture the design must necessarily be limited, being confined to such ornamental forms as could be produced by stamping or otherwise fashioning sheets of metal. The pernicious process of gilding by an amalgam of mercury and gold is superseded by the voltaic reduction of gold; and the voltaic precipitation is effected with far greater economy than the mercurial process. Messrs. Elkington and Co., though their patent has received wide extension by the grant of licences even to French firms, maintained their supremacy, and sorely puzzled their imitators by the great brilliancy of their gold and silver work. But it may be doubted whether the merits of the voltaic precipitation of metals are not more conspicuous in the larger scope afforded in its application to sculpture. In this respect it is to be regretted that fitter models than the lively Cupids of Piamingo or the dull effigies lately applied to the houses of parliament, were not selected to inaugurate the processes of electro-bronzing. In the nave was a horse's head executed life-size by electro-deposit; it was from the hand of Marochetti, and interesting by the variation of its tone. It has always been an acknowledged fact in electro-metallurgy that the cost of the reduction of iron far more than counterbalanced the original cheapness of the raw material: whether this was the case in the instance we have cited we had no means of ascertaining. The East Indians, who laid bare the gorgeous splendours of the kingdom of Oude, displayed in the inlaid gold of their tents, crowns, and horse trappings, all that barbaric splendour which charms the eye by the natural and choice harmony with which colours are blended, regardless alike of the inroads of science on one hand, or calculations of novelty on the other. The sceptre and the fly-flap, as well as other accessories which filled their tent,

showed that a spirit somewhat akin to that of the ancient Assyrians, is still abroad among these Indians. The transition from these vestiges of primitive splendour to the nicer discrimination of the present day is rather an abrupt one, but the same may be said of every stride taken in the Great Palace.

It is singular to find our neighbours, the French, doing their utmost to extinguish the brightness of the metals which the English handicraftsman does his utmost to preserve. It is well known that not only a certain dullness of tone is the natural consequence of the continual hammering and oiling of the silver necessary to bring it to a completion; but, not content with this, it has been the fashion, for the last year or two, of oxidising most part of the silver-work, which thereby acquires prematurely the sober and dusky veil which time has cast over all the brilliant sleights of hand bequeathed to us by the artists of the sixteenth century. Greater durability and a more permanent defence against the inroads of time, are also said to be secured by the present process. The system adopted consists in plunging the groups into acids, whence they emerge with their present sombre hue. Mr. Durand's "*Théière à grande réception*" was the greatest compliment ever yet paid to England's favourite beverage. It consisted of seventeen pieces, which combined chiselling, gilding, niello, and even oxidising. Though Diane de Poitiers had made way for an allegorical figure of Charity and her Children, the whole work smacked of the gusto prevalent in the reign of Francois I., in the imitation of the Florentine architecture and its incrustation of small figures. The whole design, and its adaptation to its purpose, was exceedingly ingenious, and was, we believe, originally designed by Klagman. The Louis XV. style, which the French now designate as "*rocaille*," was splendidly represented. Mr. Durand exhibited a table-ornament of assembled cupids, with decorations in this style, which showed how far a skilful hand can reconcile one to the wildest vagaries of fancy. The

firm of Rudolphi made oxidising their specialty, and seemed bent on proving that the process is equally well adapted for the largest or minutest proportions. They exhibited a circular table, or "*g   ridon*," ornamented with cupids and slender leaves at the base, the top part consisting of an inverted shield, with the embossed head of Medusa. There was also a salver with one of those nymphs Jean Goujon has made us familiar with. M. Odiot made the purpose of his ornamental work at once plain by chiselling fish, flesh, or fruit, with perfect freedom, decking his richly worked specimens.

Messrs. Smith and Nicholson exhibited a centre-piece representing a group of Arab merchants halting beneath the spreading leaves of one of those noble palm-trees, which affords them protection from the rays of their burning sun, and re-invigorates them by its refreshing shade. They were equipped in the usual travelling costume of Arabia, and were supposed to be in the midst of an oasis in the desert, watered by a solitary spring. The singular mode of life pursued by these nomadic tribes is forced upon them by the very nature of the country in which their lot is cast, and which necessarily imparts to the character and countenance an apparent solemnity not inconsistent with the perils they so frequently encounter in crossing vast scenes of sandy desolation. The camel, the "ship of the desert," as he is poetically termed, was looking round upon his rider as if desirous he should dismount, so that he should be free to pick the herbage and enjoy the repose which the situation affords. As a whole the performance was full of character, and the disposition of the group was as picturesque as its execution was chaste and expressive.

The next subject we have to notice was of a very different kind. It was so essentially English that it was impossible to mistake the costume for that of any other country. It was an exquisite performance, coming home to the heart in all its fulness, and awakening associations with which every English reader is acquainted. It was

an embodiment of the humour of Addison in the scene of Sir Roger de Coverley with the Gypsies. The good old knight was in the attitude of hearing his fortune told through the dubious light of palmistry, whilst the dark-eyed daughter of the East was wiling her way into his heart, and breaking down every barrier of prejudice that might arise to prevent the natural generosity of Sir Roger from displaying itself in a sum sufficient to reward her cabalistic knowledge. The spirit of the scene enabled us to fancy even her gradually experiencing emotions of kindness towards the knight, whom everybody esteemed, and for whom the inmates of his household felt the tenderest regard. The figure in the background, leaning upon the horse, was intended to represent Addison himself, who was evidently taking that brief interest in the scene which enabled him to realize it in a future Spectator. Messrs. Angell, of the Strand, were the exhibitors of this fine centre-piece.

On the left foreground stood a sideboard bottle in the antique style, ornamented with Gothic oak leaves. This idea was suggested by the skins used in Spain for carrying wine down the mountains. The height of the object was twenty-four inches, and it was capable of containing eleven quarts. It was silver gilt, and made entirely out of one piece of metal. On the right we had a handsome claret jug, of a richly chased wine pattern. It was exhibited by Messrs. Lambert and Rawlings.

We next noticed a magnificent ewer or race cup, from the establishment of Messrs. Garrard, of the Haymarket. It represented a group of Sioux Indians hunting the bison in one of the North American prairies. This was a work which deserved something more than a passing notice. Its original was run for at the Doncaster races, and the present was manufactured expressly for the Exhibition. In originality of conception, spirit of design, and elaborateness of finish, we think it will bear comparison with any production of the same class submitted for examination. The kindled rage of the infuriated bison,

tossing his head as if to gore the horse and bring his foe to the ground, was striking and life-like, and, artistically speaking, formed an exquisite base to the column of the uplifted horse; whose position carried the eye freely to the top of the ewer. The strained attitude of the steed, too, was excellent, and the precision which was intended to be conveyed in directing the lance of the rider, was exemplified in the position he maintained as he seemed to rivet himself to his seat. On the other side was another Indian in the act of discharging an arrow.

Messrs. Gass, of Regent-street, exhibited a brilliant collection of elaborate workmanship, among which was a dessert service of an entirely novel character, consisting of four pieces, each representing different species of aquatic plants, modelled from water-plants growing in Kew Gardens, the leaves forming dishes. One of the pieces represented the beautiful and graceful *nymphaea thermalis*, or Hungarian water-lily, in flower, springing from rock-work, on which were several rock plants. The second was the rich *nymphaea rubrea*, or red water-lily of the East Indies. The third was modelled after the *calladium*, and the fourth after the *dillirea speciosa*.

Mr. Emmanuel, of Hanover-square, exhibited a splendid silver *pendule*, surmounted by a figure of Apollo driving the chariot of the Sun, drawn by four horses, and supported by the Four Seasons. In the frieze were represented the Four Winds, and in the front of the dial the figure of Time recumbent; the whole designed and modelled by Woodington.

Messrs. Hunt and Roskell, as we have before observed, made a grand and magnificent show. Their collection was worthy a palace, and was a source of great attraction in the central south gallery, where works in gold and silver of enormous value were deposited. There was placed the testimonial in silver, designed by Sir George Hayter, and modelled under the direction of Mr. E. H. Baily, R.A., presented a short time since to Sir Moses Montefiore, by members of the Jewish persuasion, as a

mark of respect for his exertions on behalf of the persecuted Jews of Damascus. The group consisted of sphinxes—indicative of the captivity of Israel in Egypt—with a figure of Moses supporting the tables of the law, and of Ezra reading a scroll, upon which was inscribed the 22nd verse of the 8th chapter of his book. There were also two Jews of Damascus, one loaded with chains, and the other released, overshadowed by the vine and the fig-tree. The group on the summit was a representation of David rescuing the lamb from the jaws of the lion. In the *bassirilievi* were portrayed,—the Israelites crossing the Red Sea, and the destruction of Pharaoh's host; the landing of Sir Moses and Lady Montefiore at Alexandria; Sir Moses obtaining the firman from the Sultan; the persecuted Jews of Damascus returning thanks for their deliverance; and the thanksgiving in the synagogue by Sir Moses on his return. Under the latter was inscribed the 124th Psalm. This firm has long been celebrated for the production of exquisite works of art known as *race-plate*; and in their stand was exhibited the Emperor of Russia's Ascot prize for the year 1847. It was an elaborately-chased vase, representing in the base and upper part, "Peter the Great receiving the swords of the Swedish generals after the battle of Pultowa, and an event which occurred shortly previous to his death:—Being near Cronstadt, he saw a boat full of men and officers upset by the violence of the waves. He ordered instant assistance, which being ineffectual, he then seized a small boat, waded through the surf, and succeeded in rescuing the sufferers, though it brought on the disease which terminated his life a week afterwards." On the base were *rilievi* of the palaces of Peterhoff and Smolenski.

Notwithstanding the inroads which the electro-metalurgic art has made upon the old-established manufacture of plating, this method has, nevertheless, partizans, who insist on its special advantages over the new process. Mr. John Gray, of Billiter-square, exhibited a series of articles illustrative of the old method of plating, commencing with

the ingot and terminating in the finished article. The ingot, as used in the old manufacture, is composed of copper alloyed with other metal, so as to impart to it the necessary toughness and rigidity. The plate of silver is tied upon its polished surface with wire, and the combined metals are then heated in a furnace. When the temperature is raised to a certain point, their union takes place, and the ingot is then submitted to the processes of manufacture. An ingot of copper previous to this process, with the plate of silver tied upon it with wire, was shown by this gentleman. The next articles in the series were ingots of copper and white metal, after the silver plate has been united to them by an elevation of temperature only, and without the intervention of solder or any other substance. The next article was the sheet of plated metal, which is obtained by submitting the plated ingot to the rolling process. A table dish, made from the rolled metal, was the next in the series, with the silver mountings laid upon it, but not yet soldered. The steel dyes in which the silver mountings are struck, together with the mountings produced by them, were also exhibited; in fine, the table dish was exhibited in its finished state, as well as a specimen of a salver produced by the manufacturer as above described.

Among the productions of "*La Belle France*," we must not omit to notice those of Froment, of Meurice, which, taken altogether, formed one of the most attractive features in the Exhibition. His gorgeous silver centre-piece, representing the Four Seasons, obtained, as it well deserved, the great medal. Numerous other evidences of his taste, skill, and high perception of art, were to be seen in the case appropriated to his works. An agate cup, of extraordinary beauty of form and skilful workmanship, we particularly admired, the frame and stand being gold and silver, gracefully twisted in the form of a vine.

Although in these and other exquisite productions of our continental neighbours, we fully appreciate their excellent invention and taste, still it must be allowed that

British workers in precious metals have laboured successfully to place themselves in dignified contrast with their foreign rivals ; and to vindicate themselves from the vulgar charge that they lack the taste necessary for the perfection of objects in precious metals designed for use. Our British exhibitors in plate, one hundred and twenty-eight in number, represented very fairly the manufacturing excellence of England in this department of industry ; and their specimens, apart from their excellence as manufactures, included not a few curious and attractive objects. The collective value of this section it was hardly possible to estimate, but it must have been enormous. There were some fine specimens of chasing, which, before we conclude our present chapter, we shall endeavour to describe. The most conspicuous among them was a figure of "Death on the Pale Horse," after the well-known design by West. The silver on this figure was stated to be no more than  $\frac{1}{32}$ nd part of an inch in thickness. This specimen was contributed by Mr. T. Woodbridge, of Holloway. Messrs. Elkington and Mason exhibited a splendid display of electro-plated candelabra, tazzas, vases, table ware, &c. ; and in the collection of Messrs. Martin, Basket, and Martin, of Cheltenham, we noticed a handsome model of a Great Western steam-engine, and a highly wrought inkstand, called the Milton inkstand. Bracelets, guards, chatelaines, tea and coffee services, flower-stands, &c., were to be seen in almost endless variety. A fine vase in silver, after a marble antique, in the Capitoline Museum, was exhibited by Messrs. Payne and Sons, of Bath ; and amid the brilliant collection were found a silver tea-pot, coffee-pot, and tea-kettle, weighing together only 140 grains. As a curious subject for chasing, Messrs. Connell's cup, carved with designs from scenes at Donnybrook Fair, may be remarked ; and the registered brooches, from the mineral products of Ireland, were interesting specimens of dawning industry. Effective specimens of industrial skill and taste were exhibited in some finely-chased silver mountings for a highland dress, richly

studded with carbuncles, and exhibited by an Edinburgh firm. Passing by brilliant specimens of electro-plated articles, exhibited by Messrs. Wilkinson and Co., of Birmingham, and others, and plate in all its varieties—forks, spoons, fish-knives, candlesticks, Etruscan jugs, taper-stands, &c., we came to a solid silver table-top, 55 inches in diameter, weighing nearly 900 ounces, and manufactured for the Governor of Aleppo, by Mr. Collis, of Birmingham. Passing from this gorgeous and costly specimen of the silversmith's skill, the next object which claimed particular notice, was an epergne and sculptured silver candelabra, weighing about 750 ounces, and designed by V. Nicholson. This fine specimen of British taste and skill was the production of a Sheffield firm, Messrs. Dixon and Sons. Passing on, rapidly surveying the bright collections of tea-urns, tureens, claret jugs, communion plate, candlesticks, coolers, plated articles with silver mountings, venison dishes, rams' heads mounted as cigar cases, snuff boxes, &c., dirks, purses, ornaments of highland regiments, imitations of or-molu, we came to a fine embossed and chased salver representing Aurora, or the Hours, after Guido, surrounded with a border after the Tredacna shell. This brought us to a gorgeously mounted meerschaum pipe, exhibited by the celebrated Inderwick, of Leicester-square. Not far from this luxurious tobacco bowl, sentimental young ladies in dense clusters might have been found admiring ingenious patterns, worked in hair by Mr. Cleal, of Poland-street, Oxford-street, while not far distant, thoughtful people of a "certain age," examined with painful attention, Mr. Mortimer's mechanism for rectifying irregularities in the growth of teeth. This class included also some ingenious specimens of imitation Cameos; but the admirers of brilliants clustered eagerly about Mr. Hope's casket, containing a blue diamond, weighing 177 grains, mounted as a medallion, surrounded by brilliants, "and supposed, from its size and colour, to be unique."

The dessert service, exhibited by Messrs. Gass, of Regent-street, we have already noticed. This firm also

exhibited a dazzling silvered jewelled dessert service, in the Elizabethan style, and a bracelet, set with brilliants and carbuncles, and including portraits of the Queen and the Prince of Wales, after Thornburn, executed in niello, and engraved by J. J. Crew; also a silver gauntlet niello bracelet, designed by Maclise. In oxidised silver the English exhibited some fine specimens—among these the statuettes of Phillips, Brothers, of Cockspur-street, were particularly noticed. The progress of a lump of metal through its various stages till it is perfected in the shape of a bracelet, was illustrated by Messrs. Wheeler, of Bartlett's-buildings, Holborn. Rambling on in the vicinity of cases of gorgeous works in the precious metals, we came to a curious gold watch, invented by S. Boreham, to beat seconds and to strike at the minute. This watch attracted considerable attention, and was certainly a curiosity as a specimen of minute clock-work. Other attractions led us in various directions, and it would be impossible to carry a notice of the glittering display to any length. First, we were attracted by a fine drawing-room clock, designed by C. Grant, with subjects by G. Abbott. This composition was inclosed in an electrotyped case, and stood upon a base and pedestal of turquoise blue glass. Then we paused to notice a child's mug, upon which Wilkie's "Blind Man's Buff" was finely chased. Next our attention was attracted by the royal arms of England since the Conquest, engraved upon various metals. Then came the splendid cups, caskets, tazzas, centre-pieces, candelabras, vases, etc., exhibited by Messrs. Hunt and Roskell; then a tea-tray, illustrative of the purposes of the Exhibition, finely engraved by Donalds; then, in melancholy mood, we paused over the last work of Wagner, of Paris, a silver rose-water dish, exhibited by Mr. Forrest, of the Strand; then we endeavoured to picture to ourselves the delight of Staunton before the gorgeous chessmen, exhibited by Eady, of Clerkenwell; and then we could not but notice the candelabrum, given as a testimonial to Mr. Macready. Designs in every variety

appeared to be here assembled, from the rigid Elizabethan style to the familiar and homely illustrations of Donnybrook fair. Here was a chased shield, representing the battle of Alexander and Darius; further on a salver, illustrating the labours of Hercules. Messrs. Armitage and Horsley's "Spirit of Religion," had been adapted to the dimensions of a silver tablet for a Bible binding; while the national pride had been fed with the Shakspeare Cup, already described, chased with subjects from Lear, Julius Cæsar, Othello, the Tempest, Macbeth, and Hamlet. *Ohe jam satis!* we imagine our readers will be tempted to exclaim. We shall, therefore, conclude our remarks on the present subject, and commence a fresh chapter.

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## CHAPTER XXIII.

LETTERS OF M. JOHN LEMOINNE—LETTER I.—FOREIGN IMPRESSIONS—BRITISH AMENITY—VAST BUSTLE—OMNIBUSES—SUNDAY VISIT—FINE CLIMATE OF ENGLAND—INVALIDS—HER MAJESTY—VARIETY OF NATIONS.

WE shall now pause awhile in our own retrospective survey of the glories and the wonders of the Fairy Palace, and present our readers with the *naïve* remarks of a lively and talented French writer on the all-engrossing topic of the World's Fair, which evince in a remarkable manner, the admirable spirit of kindness and good feeling that has already resulted from the amicable admixture of all nations in a cause devoted entirely to peace, order, good-will, and mutual benefit and improvement; a cause of which the effects will, we doubt not, continue to extend themselves to the extremest points of social civilization.

## LETTER I.

*London, June, 1851.*

If I remember rightly, it is Jean Jacques Rousseau who affirmed that he would rather be accounted a man of paradoxes than a man of prejudices; I hold the contrary opinion. There are amateurs of paradoxes, who come to London *not* to go and see the Exhibition. I was so prejudiced as to go there on my arrival, and was still more prejudiced, in common with many others, by being overwhelmed with admiration at the marvellous spectacle. This sentiment is universal. I hear it on all sides, and in all languages. There is no spirit so critical or sceptical as not to bend before this vast display.

Independently of the difficulties opposed to the mere execution of the enterprise, there was a certain feeling of hesitation in the public mind as to its result. The effect of its opening was regarded with a certain misgiving, and the first month produced a degree of disappointment among the Londoners. The hotels were scarcely fuller than usual. The lodging houses exhibited their melancholy bills, and the innumerable preparations made to receive the whole world, seemed as though they had been made in vain. So much had been said in anticipation of the millions about to pour into the great metropolis from the first day, that vast numbers were alarmed rather than attracted, and paused to hear the result of the opening before venturing to come. It had been imagined throughout Europe, that it would be impossible to move in the streets; that persons would be compelled to sleep in the open air,—not a very agreeable anticipation, considering the opinion generally entertained of the climate and atmosphere. It soon appeared, however, that these were exaggerations. By degrees our fears were removed, and when it was discovered that everything went on in the most quiet and regular manner possible, the visitors commenced their journey; and now, from the shores of the most distant seas, numberless caravans come to plant their

tents around this great mart of the universe. It is like the movement of an ocean, one wave following another. The tide has been slow, because its point of departure was distant; but once in motion, it will not cease. This pacific invasion of all nations has changed the aspect of London. In this immense city, which has no barriers, still less fortifications, and which is an aggregation of small towns and villages which have grown into one another, and have at length coalesced, and formed the great metropolis, the presence of foreigners is, in general, rarely observable. At present, however, one's ears never cease to be struck with all dialects, known and unknown. From the Chinese, true and false, to the serfs of Russia, all races are represented, and are walking about in all costumes, to say nothing of the beards and moustaches, which here in England are still a foreign garbment.

The English have on this occasion abandoned their usual habits. In very truth, I think they are becoming social and familiar. They have always been polite and hospitable to those who bring proper introductions to them, but now one actually meets some who enter into conversation without such preliminary condition. Decidedly, British manners are altered. This exceptional conduct arises, however, from an excellent sentiment,—the English are now offering hospitality to the whole world, and they pique themselves on receiving it graciously. They are desirous, too, that the highest idea should be formed of their national grandeur, and they question you with evident solicitude on the impression produced by the inspection of the Exhibition.

This impression, it must be admitted, is very grand. You feel it even before you reach the Crystal Palace. As on a journey you recognise the approach to a great city by the perpetually increasing number of persons you encounter on the road, so in the movement which is accelerated and increased on the road to the Exhibition, you recognise the approach to a great centre of attraction. I here notice only the simple impressions of the spectator

or the tourist, but I can easily conceive the effect which the sight of Piccadilly, Hyde Park, and that great road which leads to the Crystal Palace, must produce on strangers. It is an inconceivable bustle, which defies all description. The uninitiated traveller is absolutely bewildered. The passing and repassing of horses and carriages seem like the crossing of several trains on a railway. It is indeed a *mêlée*, which, when seen for the first time, leads one to fear that the result will be collision, and a general upset. We are quite surprised to see nothing overthrown, nothing broken, and that all these carriages make their way out from one another, as if they were of gutta percha.

The multiplication of omnibuses, especially, seems fabulous. They may be counted by hundreds in a quarter of an hour. The best method of seeing in this country, and at the same time the most democratic, is to mount the top of an omnibus. From thence you have a view of the whole route, and this astonishing palace of glass may be seen long before reaching it.

Nothing can be more striking than the first view of the transept. Facing you is a large tree, which has been placed, as it were, under a bell, like a plant. Advancing, you make the tour of this immense dome, amidst verdure and flowers, the murmur of waters, and encounter at the other extremity two other large trees, likewise enclosed in this prodigious glass case.

Imagine, now, 50,000 men, women, and children, walking about in this vast green-house, without the least tumult or disorder. On the days on which the price of admission is one shilling, about 70,000 persons sometimes visit it. There are two days on which the price is higher; on Friday half-a-crown is paid, and on Saturday five shillings. Saturday is the fashionable day, and as the palace is not closed until seven o'clock, Albion may be seen from four to six in all the *éclat* of her beauty. The shilling days are not less curious. These are the days for country people, who arrive in their rustic dresses, with their wives, their children, and provisions. The railways

bring them to London at reduced fares, and at the station they take large waggons, which bring them to the Exhibition. Caravans full of them are thus encountered in the streets. Whole parishes sometimes come, headed by their clergymen. The colonels of regiments send their soldiers, and the admirals their sailors. Not less worthy of observation are the hundreds of charity children, in their blue dress with yellow stockings, that are frequently met, marching in rank and file. About two or three o'clock every one eats, and takes his luncheon.

There are several buffets, where there are all kinds of fearful pastry, and horrible creams that would be ices. The prices are fixed by the committee, and marked up. No wine, beer, or spirits are allowed, but of course there is tea. There are, besides, interspersed in the palace, several fountains of filtered water, ornamented with small drinking cups, at the disposal of the promenaders.

Saturday morning, until twelve o'clock, is reserved for the infirm and the invalids, who are drawn in small carriages, and of these there are a great number.

I have seen the Exhibition also under an aspect which is not void of picturesque,—I have seen it on a Sunday. I should have thought this undertaking impracticable, for here the earth is not permitted to turn on its axis on Sundays, whatever Foucault may think proper to assert. I did, however, succeed in entering, thanks to patronage which I will not betray. Silence reigned around; the very clocks were still; I believe there was but one going. The statues, enveloped in wrappers, resembled ghosts, and the most precious articles were also covered up. I was particularly struck at the sight of a policeman, quietly occupied with his Prayer-book, whom our desecration of the Sabbath must have somewhat scandalised.

Sixty years were required for building St. Peter's, at Rome. The new Houses of Parliament, at London, were commenced fifteen years ago, and are not yet finished. The Palace of the Exhibition was begun and finished in three months. Will it live like the roses, only for a

season? This is the question of the moment. For poetic imaginations, there would be a certain charm in the destruction of this magical work, which would only, as it were, have appeared on the stage as a passing scene. Cleopatra, indeed, caused the most costly pearl in the world to be dissolved in a cup, and gratified herself by drinking a million at a draught. Why may not a great nation indulge in caprices such as that of Cleopatra?

One of the greatest and rarest curiosities that England presents at this moment to foreigners, who come to see the Exhibition, is decidedly the sun. I am not speaking of the famous *Mountain of Light*, but the veritable sun in the sky, which diffuses light and heat. For some days London has had a factitious air of Naples. Piccadilly and Regent-street are as scorching as Santa Lucia and the Chiaja. There is, however, this difference, that in Italy the streets are deserted during the whole day, and that here the movement of the population is never for one moment suspended. Some tourists, who have come with the idea that the sun is never to be seen in London, and that people walk about with torches in mid-day, feel actual disappointment in being able to distinguish the dome of St. Paul's. Some there are, indeed, who wish to falsify the proverb, "*Solem quis dicere falsum*," and who are quite ready to believe that the English have invented some process to warm their climate for this particular occasion. And why not? These Englishmen are so vain, and they have invented so many machines! You may easily imagine that, in such weather, the Crystal Palace somewhat resembles a hot-house. One spends one's time in looking for seats as near as possible to the fountains and basons of filtered water, and in eating those eternal creams, which are something like iced pomatum.

It is more in vogue than ever to go on Saturday morning. I have before said that the forenoons of Saturday are reserved for invalids, who are admitted in their wheeled chairs, in which they are drawn about. There are many

real invalids, but there are also some false ones, who, so soon as they have obtained admission, like Sixtus Quintus, get rid of their crutches, a circumstance which gives the Crystal Palace a certain likeness to the Court of Miracles.

On Saturdays, one meets regularly her Majesty and suite, and then the organs play spontaneously, "God save the Queen." In this country, all instruments play this air; in the same way as everything is called "Waterloo,"—the streets, the bridges, the omnibuses, the pale-tots, the boots. Not to be behindhand with the public in politeness, let us leave the queen peaceably to her promenade, and let us continue ours. It is a mere promenade of curiosity, only a little tortuous, that I ask permission to make. If we would proceed regularly, it would be difficult. We should lose ourselves. The police office is every day encumbered with objects that have been lost, from umbrellas to children. Yesterday, the policemen collected, along with sticks and parasols, half-a-dozen little girls, who had arrived by a "pleasure train." Happily, they were ticketed and numbered as bales of goods, and were marked from "Bristol." After having received lunch, they were taken back to the sheep-fold.

England, as you are aware, reserved half the Crystal Palace for the exhibition of its own products—all the left-hand, on entering by the principal door. This is comprised under the name of the United Kingdom. Nothing can better represent "*penitus toto divisos orbe Britannos*." With England, Scotland, and Ireland, there are India, Jersey, Guernsey, the Ionian Islands, Africa, Malta, Canada, Nova Scotia, New Zealand, the Bermudas, the Bahamas, Trinidad, Ceylon. The United States of America no longer belong to the mother country. They walk alone, having attained their majority: they are at the extremity of the other nave. On the right side are all the nations who have flocked together to this great rendezvous. France is placed amidst Turkey, Egypt, Italy, Spain, Portugal, China, Switzerland, and the Brazils.

To the name of France has been added that of Algiers, a sign that they do not endeavour, as heretofore, to contest our conquest, and that they now regard it as a "*fait accompli*." The middle of the great nave is occupied by objects of art, disposed with much skill and effect. On the first *coup d'œil* of this avenue, which is one-third of a mile in length, one may form a philosophic idea of the genius of the different nations who figure at the Exhibition. Thus, while the foreign nave is filled with *objects of art*, properly speaking, the English is principally occupied by *objects of utility*.

As I cannot write a catalogue, I pass over the statues and the organs. The capital work of sculpture in this gallery is the *Amazon*, by Kiss, of Berlin. It is an Amazon, who strikes with her javelin a tiger, which has fastened on the neck of her horse, and is a masterly performance. Something less severe, but more pleasing, is the *Greek Slave*, by an American sculptor. It is not, perhaps, an *ideal* type, but is a copy of an admirable figure. The young slave is placed in a niche, in velvet, on a turning joint, and must be a little giddy by the end of the day.

After indulging, contrary to her custom, in a work of art, America exhibits another work, which characterizes her much better. It is an enormous supply of articles in *caouchouc*! It is difficult to conceive anything more ugly, but possibly it is useful. I presume the United States were desirous, by this frightful edifice of india-rubber, to symbolize themselves, and typify the development to which they are destined. Beside this are two of those poor Indians (*Iowas*,) whom we formerly saw at Paris, and with whom I remembered to have breakfasted. I still remember their air of profound sorrow, which betrayed their nostalgia, and the delight which they exhibited when in a large garden. There is something cruel and ostentatious in the exhibition of these two poor red-skins. It is nothing but a trophy. They are the slaves chained to the car of the conqueror; they are the

shadow of the old races that the victorious and implacable civilization of the West crushes in its progress. The American exhibition is crowned, at the extremity of the nave, by an immense organ, the pipes of which are ornamented in such a manner, that they resemble great penny trumpets or gigantic sugar-sticks.

From American to English art the transition is easy. Both are of the same character, generally prosaic. I should except a very graceful group in marble, representing Venus and Cupid, by Davies; but the rest of the objects which fill the English nave are composed, in general, of works in which the useful is more prominent than the agreeable. We now have before us a trophy, not in caouhouc, but in silk. It is the exhibition of home-made manufactures, at least so called; but wherever you find very beautiful silks, they probably are from Lyons. After this you see another trophy, in Canadian timber, surmounted by a skiff; then another in Sheffield cutlery, consisting of pen-knives with five or six hundred blades, two hundred and fifty pair of scissors of every kind, one of the triumphs of England. Then enormous glasses; then light-houses and improved telescopes; then a trophy in furs, exhibited by the Hudson's Bay Company; then models of every kind.

After this excursion in the nave of the Crystal Palace, let us go, if you please, to see the adoration of the relics. On the right, and nearly at the entrance of the foreign nave, you observe a crowd, curious and eager, flocking about a great parrot-cage with gilded bars. Within that is placed on a cushion the *Koh-i-Noor*. This diamond supplies, in the history of Central Asia, the place of the golden fleece, and has occasioned more than one bloody war. It ultimately came into the hands of Runjeet Singh, and when, after his death, England annexed his kingdom to its Indian possessions, the "Mountain of Light" was sent to London.

It is now, if not the most curious, at least the most attractive article in the Exhibition. It weighs 186 carats.

As to its value, it is necessarily nominal; it may be worth two millions, or nothing. To ordinary eyes it is nothing more than an egg-shaped lump of glass. They may show us what they please, and call it Koh-i-Noor. On ordinary days, that is, the shilling days, it is exposed in its great cage, ornamented with a policeman, and they rely on the sun to cause it to sparkle; but on the Friday and Saturday it puts on its best dress; it is arrayed in a tent of red cloth, and the interior is supplied with a dozen little jets of gas, which throw their light on the god of the temple. Unhappily, the Koh-i-Noor does not sparkle even then. Thus the most curious thing is not the divinity, but the worshippers. I have seen a pretty considerable number of relics adored, from the *Bambino* in wood of the *Ara cæli* at Rome, to the blood of St. Jannarius at Naples. The adoration of the *Mountain of Light* is quite of the same character. One places one's-self in the file to go in at one side of the niche, looks at the golden calf protected by the impassable policeman, and goes out on the other side. If the organs should chance to play at the same moment, the illusion is complete.

There is another thing, also, which has the same effect. It is a fountain of Eau de Cologne of Maria Farina. This is also guarded by a policeman, who takes quietly your handkerchief, passes it across the *jet d'eau*, and returns it perfumed. The Koh-i-Noor is well secured; it is placed on a machine which causes it, on the slightest touch, to enter an iron box. It is thus put to bed every evening, and does not get up till towards noon. The procession of the faithful then commences, and only finishes at seven o'clock.

We shall here, for the present, take leave of our lively and intelligent correspondent, with the intention, however, of renewing our acquaintance with him at a fitting opportunity.

## CHAPTER XXIV.

THE POTTER'S ART—STAFFORDSHIRE POTTERIES—SEVRES PORCELAIN — DRESDEN PORCELAIN — MEISSEN PORCELAIN — VIENNA PORCELAIN—ENGLISH PORCELAIN—STATUARY PORCELAIN—VARIOUS SPECIMENS OF STATUARY PORCELAIN—ORNAMENTAL PORCELAIN—NEW USES OF PORCELAIN.

WE shall again, in this chapter, occasionally avail ourselves of the assistance of our learned friend, Dr. Lardner, and present our readers with the substance of a portion of his lucubrations respecting "THE POTTER'S ART," as connected with the Great Exhibition.

No department of the great museum of industrial products presented to the attention of the intelligent visitor, attraction stronger and more peculiar than that which was devoted to the ceramic manufactures, including porcelain in all its varieties, Oriental and European, earthenware, stoneware, flintware, faïence, delft, ironstoneware, terra-cotta, bricks, tiles, and in general every form of baked earth used in the arts and sciences.

In no branch of the useful arts do the ultimate results differ so immeasurably from the original materials as in this. What can more powerfully excite our wonder and admiration at the value which labour and art can confer on the basest materials, than to reflect that the beautiful portraits in Sèvres porcelain of the Queen and Prince Albert, after Winterhalter, and the magnificent vases which were seen both in the British and foreign collections, are composed of nothing more than so many lumps of a whitish clay, and a collection of the rusts (oxides) of certain metals, all beyond this being the work of art?

Another circumstance which conferred peculiar interest on this section of the Exhibition was the extraordinary rivalry which it developed among different countries, and the unequal conditions under which British industry entered into this competition. Seven imperial and royal establish-

ments for the manufacture of porcelain, supported by state subsidies, and encouraged by state patronage, sent their choicest productions to be displayed beside those of the unpatronised, unsubsidised enterprise of Staffordshire and Worcestershire. Thus we had, in the French department, a magnificent collection of the finest pieces of porcelain from the National (late Royal) manufactory of Sèvres. A similar collection was sent from the celebrated Royal porcelain manufactory of Berlin, and the Imperial porcelain manufactory of Vienna also sent a rich collection of its productions. Besides these, the Royal manufactories of porcelain at Copenhagen and Nymphenburg, near Munich; and, in fine, the Imperial porcelain works of St. Petersburg, severally unfurnished their museums, and transferred their richest treasures to the Crystal Palace.

The fabrication of ornamental porcelain in these several national establishments is conducted irrespectively of commercial profit. If any expedient for the improvement of the art be proposed to the British manufacturer, he must necessarily consider the probable cost of trying it, and the probable loss in case of its failure. These considerations are, however, disregarded in establishments supported by the state, and every expedient for the improvement of the art, presenting the slightest probability of a successful result, is tried. All that is most eminent in science, in each of the countries above-mentioned, is brought to bear upon the improvement of the ceramic art. Besides pecuniary emolument, personal honours and rewards are lavished on all who contribute to its advancement. Thus, we find at the head of each of these establishments, as well as at the head of each of their departments respectively, individuals who have attained the greatest eminence in those sciences which are more immediately connected with this branch of manufacture, and personal honours and distinctions, such as orders of knighthood, decorations, crosses, &c., lavished upon them as a farther stimulus to exertion.

The antiquity of the ceramic art renders it an object of special interest. Everybody is familiar with the allusions to the potter's wheel in the Old Testament, and indications of the prevalence of the manufacture at an early epoch in the history of the human race are abundantly confirmed by the annals of Oriental nations, and by the material evidence of vases of baked earth which have been found in ancient tombs, and which are preserved in the national collections.

Among the objects exhibited in the Chinese department was included a complete collection of the various materials employed at the great porcelain works of Kiang Tiht'Chin, as it was named in the catalogue; otherwise, according to better authorities, King Te Tching. This collection consisted of specimens of the plastic clay of which the Chinese porcelain is formed, and of the various colouring matters with which it is decorated.

The place from which these specimens were sent is the seat of a very ancient manufactory of porcelain. Father Entrecolles, a French missionary, resided there in the beginning of the last century, and he states in his letters, that there were in operation at this place, in 1712, not less than 3,000 ovens, which gave the town, during the night, the aspect of a vast furnace with a multitude of chimneys. It is impossible, in reading his description, not to be reminded of the appearance of certain parts of Staffordshire at night. Ancient pottery, in his time, was in great demand in China, and extremely dear. Many vessels of great antiquity were obtained from tombs and other ruins. Vases were said to have been discovered of the times of the Emperors Yao and Chun, who flourished above two thousand years before the Christian era. In the ancient tombs at Thebes also several vases of Chinese origin were found, which, by their inscriptions, appeared to have been fabricated eighteen centuries before Christ. The fine porcelain, however, was not known before the year 900, A.D.

In Europe the first collection of fine porcelain was

imported in the year 1518, by the Portuguese, and for 200 years after that period Europe derived its entire supply of that article of luxury from China. About the middle of the seventeenth century, a small factory for the manufacture of pottery was established at Burslem, in Staffordshire, which, in the year 1690, owed considerable improvements to the Messrs. Elers, who had immigrated there from Holland, and to their exertions may be ascribed the origin of the celebrated Staffordshire Potteries, now an absolute hive of industry, employing 70,000 operatives. It is there we find the splendid establishments of Messrs. Copeland, Minton, Wedgwood, Alcock, Pratt, and others, whose productions enriched the gallery of the northern transept of the Exhibition.

Among amateurs in porcelain there prevails a notion, that the art of fabricating the tender porcelain of Sèvres has been lost, and that, since it is impossible to reproduce the articles, they must necessarily have a high value in the market. This is, however, erroneous. All the materials and processes for the fabrication of this description of artificial porcelain are preserved at Sèvres, and the manufacture can be re-established whenever it is desirous to do so. Indeed, we are informed at this moment that the administration entertains an intention of recommencing the fabrication of this description of porcelain for articles of ornament, such as vases, pictures, &c., the imperfections incidental to it not affecting such objects.

All the Sèvres porcelain sent to the Exhibition was of the kind called *hard*, that being the only description fabricated for the last fifty years.

The portraits of the Queen and Prince Albert, in the great aisle of the Crystal Palace, are fine specimens of the largest porcelain painting which has been produced at Sèvres. These portraits, after Winterhalter, were executed by command of Louis Philippe, and presented to the Queen. They were commenced before the revolution of February, but not finished till afterwards. Louis Philippe claimed them as his private property, and they were sur-

rendered to him by the Republican Government; but the portrait of Prince Albert had met with an accident by which it was broken. Louis Philippe desired to have another made, but the Queen would not hear of this expense being incurred, and the fracture being repaired at Sèvres, the portraits were sent to England, and delivered to her Majesty. The portrait of her Majesty was by Ducluzeau, and that of Prince Albert by Bezanget.

Among the most splendid collection of paintings and vases exhibited by the National manufactory of Sèvres, the most valuable and most worthy of attention and examination, were the following:—

The picture of the Virgin, known as the *Vierge au Voile*, by Madame Ducluzeau, copied after Raffaele in the Louvre. The porcelain was of the same size as the original, and was valued at £1,000. Another, after Tintoretto, by Madame Ducluzeau, at £880. A flower subject, 40 inches high, by M. Jacober, £800. A large cup, 45 inches diameter and 34 inches high, porcelain biscuit; the three principal figures upon the cup represented Industry in the fields and the workshop, and Education; the three corresponding medallions represented Ceres, Vulcan, and Minerva; around the foot of the cup were grouped three figures representing the Fates. Several vases of rich design and elaborate execution; a pair, in particular, with landscapes representing the Seasons, valued at £216. Various cups, also of splendid workmanship, after Benvenuto, Cellini, and others.

The style of the Dresden porcelain is familiar to all amateurs, and, whatever difference of opinion may prevail as to its taste, there can be none as to the admirable excellence of its execution. All who have visited the collection at Dresden, will be familiar with the series of animals, represented on a scale approaching to the natural size, including bears, rhinoceroses, vultures, peacocks, &c., made for the grand staircase which conducts to the electoral library. These were fabricated as early as 1730. At a later period, when the manufacture had undergone

improvements, large ornamental pieces of porcelain were made, such as the slabs of consoles and tables, some of which measure from 45 to 50 inches by 25, and are richly decorated with flowers.

Among the objects exhibited, the most conspicuous were two magnificent vases, one after a design by Semper, decorated with painted medallions and gilding, and another ornamented with painted figures and flowers after Watteau. The frame of a mirror, richly decorated with coloured flowers in relief and girandoles, was also much admired.

The grotesque figures and groups of Dresden porcelain have always been admired for their execution, if not for their style. The costumes are especially admirable, and the representation of fine work, such as lace, truly wonderful. Some specimens of this were seen in the Exhibition. One of the grotesque pieces which obtained most celebrity, and was familiar to all amateurs, was the famous tailor of the Count de Bruhl, a figure which was remarkable for the difficulty of its execution, owing to the numerous accessories it included. The figure of the tailor was represented riding on a goat surrounded with all the implements and appendages of his trade, and was about 20 inches in height. A beautiful specimen of flowers was also exhibited, consisting of a *camellia japonica*, with leaves and white flowers in porcelain, in a gilt pot, on a stand of white and gold porcelain. This article was priced at £90.

The Royal manufactory at Meissen exhibited two vases of light blue, with portraits of the Queen and Prince Albert, adorned with escutcheons filled with flowers and rich gilding; a girl playing on a guitar, with laces; a fluteplayer; an *étagère* with girandoles in flowers in relief; a picture of a lacemaker, after Siingeslandt, price 50 guineas; a picture of a Ganymede, after Thorwaldson; and statuary porcelain.

Besides the ornamental porcelain exhibited by the Royal manufactory, two collections of painting on China after classical pictures, were exhibited by the well-known

artists of Dresden, Bucker and Walther. The former exhibited eleven paintings, in gilt frames, from Corregio, Carlo Dolce, Titian, Murillo, Gessi, Guido, Raffaele, &c.; also eighteen paintings of larger size, including specimens from Ruysdael, Claude Lorraine, &c. The latter also exhibited a variety of subjects.

The Imperial porcelain manufactory of Vienna was established in the year 1774. One of the foremen of Meissen, named Stobzel, had deserted from that establishment about the year 1718, and escaped to Vienna, where, aided by a Belgian, named Pasquier, and favoured by a privilege, or a sort of monopoly for twenty-five years, granted to him by the Emperor Charles VI., he established, in 1720, a small porcelain manufactory. Not, however, having sufficient capital to carry it on, it declined, and was finally purchased by the Empress Maria Theresa, in 1744, and erected into a Royal manufactory. It was, in like manner, by means of information brought by deserters and runaways from factory to factory, that the fabrication of porcelain came to be established successively in the Royal manufactories of Louisberg, near Stuttgart, at Berlin, Copenhagen, Brunswick, and St. Petersburg.

The first English porcelain was manufactured at Bow and Chelsea, the paste being composed of a mixture of sand from Alum Bay, in the Isle of Wight, with a plastic clay and powdered flint glass; this was covered with a leaden glaze. This manufactory had considerable success. In 1748, the manufactory was transferred to Derby; and in 1751, Dr. Wale established at Worcester a manufacture of tender porcelain, called the "Worcester Porcelain Company," which still exists, though in other hands.

If the British manufacturer have not attained the high excellence in the ornamental department of the manufacture of porcelain, and cannot produce paintings after the great masters, enamelled on large slabs of porcelain, to rival those of Sèvres and Meissen, he has proved by the late Exhibition, that the day is not far distant when even

those productions may be executed in Staffordshire, and that meanwhile, he has outstripped altogether, all rivals in the production of articles fitted for the common use, not only of the middle, but of the most affluent classes, at a price which sets all foreign competition at complete defiance.

We must not omit, in recording these advances in ornamental pottery, to make honourable mention of the name of Josiah Wedgwood, who introduced into the Staffordshire potteries all the improvements of science, and the elegance of art, both with respect to form and material; and the effect of his exertions has been, that the wares of that district are not only brought into general use in England, to the exclusion of all foreign manufactures of the same kind, but English earthenware is sought for and celebrated all over the world, and nowhere more than in those places where foreign porcelain has been previously in use.

Many eminent foreigners have borne testimony of this, especially M. Faujas de St. Fond, who says:—"The excellent workmanship of English porcelain, its solidity, the advantage which it possesses of sustaining the action of fire, its fine glaze, impenetrable to acids, the beauty and convenience of its form, and the cheapness of its price, have given rise to a commerce so active and universal, that the traveller from Paris to St. Petersburg, from Amsterdam to the farthest part of Sweden, or from Dunkirk to the extremity of the south of France, is served at every inn with English ware. Spain, Portugal, and Italy are supplied with it, and vessels are loaded with it for both the Indies, and the continent of America."

One of the branches of the manufacture of porcelain, in which British industry and art has of late years had the start of the Continent, is statuary porcelain. This has been lately introduced by the Staffordshire manufacturers, and numerous specimens of it were seen in the Exhibition. The Duchess of Sutherland, to whose munificent patronage the local manufacture of Staffordshire is

so greatly indebted, was one of the first to perceive the capabilities of this material, and to encourage its extension and use. Gibson, the sculptor, having his attention attracted to it by her Grace, admitted that it was the next best material to marble, and was desirous to see some of his own works reproduced in it. By permission of the Council of the Royal Academy, a reduced copy of his "Narcissus" was accordingly made at the manufactory of Alderman Copeland.

The process of producing this imitation of sculpture is extremely interesting. Since its first introduction it has undergone great changes and improvements; it is now composed of one homogeneous mass of statuary porcelain, whereas at first a thin superficial coating was laid over a coarser material, which produced a far inferior article than the present mode. The process, however, is much more difficult and liable to fracture, in consequence of the great contraction it undergoes in the oven. The linear contraction in the process of baking is about one-fourth; a figure four feet high, on coming out of the oven, being only three feet. The actual contraction of bulk corresponding to this linear contraction is more than one-half.

When a figure or a group is to be cast, a considerable number of separate moulds are required, each separate part of the figure or group being separately and independently cast. Sometimes as many as fifty moulds are required for a single group. The cast taken from each of these moulds is first retouched, the seams produced by the junctions of the mould being cleaned off by scraping with a knife. The several parts are then united,—a difficult process, and requiring the most consummate dexterity in the operator. The parts are united by applying slips to the surfaces in contact, but the clay being in this state extremely tender and friable, the weight of the projecting parts would be more than the cement used in joining them is capable of resisting. After being well dried in the air, the figure is placed on "saggers," a name given

to the props which are placed under every part, so that the whole is well and evenly sustained.

The difficulties attending this fabrication may be imagined by following the several stages through which the article passes before the baking is completed. Assuming the height of the object to be 24 inches, the shrinkage in leaving the mould, before exposure to heat, will be an inch and-a-half. After the several parts, which, as we have just stated, are moulded separately, and are separately subject to a like shrinkage, have been put together, and the seams produced by their junction cleaned off by the "figure-maker," the article is thoroughly dried in the air without exposure to heat. This process is necessary, because the quantity of moisture incorporated in this state is such that the expansion occasioned by exposure to an elevated temperature would produce fracture. In this process of air-drying, a further linear shrinkage of an inch and-a-half takes place; so that, before being placed in the oven, the linear dimensions, from 24 inches are reduced to 21. And, lastly, when it is "fired" in the bisque oven, it is contracted to 18 inches. In the entire process, therefore, it loses one-fourth of its linear dimensions, and consequently nearly one-half of its actual cubical bulk. The consummate skill, however, that is brought to bear upon this beautiful manufacture is such, that not the slightest defect of form or outline is to be discovered.

Nothing, indeed, could be finer than many of the groups that were exhibited; such, for example, as the Ino and Bacchus, after Foley; or the Narcissus and Venus, after Gibson. Indeed the objects exhibited in this department were so numerous that it is difficult to specify such as were most worthy of notice.

The figure of Sappho, three feet high, from the original marble of Theed, was entitled to attention, were it only for its extraordinary magnitude, a circumstance which greatly enhanced the difficulties and hazards of its execution. The original statue is the property of Prince Albert. The following were also worthy of examination:—The

Indian Girl and the Nubian, by Cumberworth; the Prodigal's Return, and Rebecca, by Theed; a Venus by Gibson; a bust of Juno from the antique; a Goat-herd by Hyatt; Sabrina, by Marshall; Innocence, by Foley; and Narcissus, by Gibson; Godiva, by M'Bride, executed for the Art Union of Liverpool; an equestrian statuette of Emanuel Phillibert, Duke of Savoy, by the Baron Marochetti; her Royal Highness the Princess Alice as Spring, the Princess Royal as Summer, the Prince Alfred as Autumn, and the Prince of Wales as Winter, from the original models by Mrs. Thorneycroft, executed for her Majesty.

It was impossible to contemplate this collection of imitation of statuary without being impressed with an idea of its utility in disseminating copies of the great works of ancient and modern art to an extent hitherto unknown, with a fidelity, too, as to colour and texture, unattainable by any other process.

The British department of the Exhibition was extremely rich in ornamental porcelain. A dessert service was exhibited by Messrs. Minton and Co., original in its design, and novel in its principal features of ornamentation. The combination of statuary porcelain, which is the hard species, with the coloured and gilded porcelain, which is the tender species, was here attempted, and gilding on the statuary porcelain was also successfully accomplished.

The turquoise ground on this service was scarcely inferior to that of the old Sèvres, and it is capable of resisting the strongest vegetable and most of the mineral acids. It consisted of 116 pieces, the most remarkable of which were two flower-stands with figures representing the Four Seasons, two wine coolers, with hunting groups, and two oval baskets, with oriental figures. Several of the pieces were supported by figures with fanciful designs, and the plates, 72 in number, were perforated and richly ornamented. This service was purchased by Her Majesty, to be presented, it was said, to the Emperor of Austria. Many articles in statuary porcelain were purchased by

Her Majesty in the Exhibition. Among others were the equestrian figures of the Amazon, after Faichères, and Theseus, Flora, and Temperance, from bronzes in the collection of the Duchess of Sutherland, and Love restraining Wrath, an original group.

The Parnassus Vase was another striking example of the combination of statuary with painted porcelain, the *bas-relief* illustrating Apollo and the Muses. Several vases in the Copeland collection were very beautiful and of novel design, in coloured enamel, with imitation of pearls and gems, inlaid in gold. A large copy of the Warwick vase was also well worthy of attention.

One remarkable feature in the collection of porcelain exhibited by British industry, was the various and unexpected uses to which it had been applied—uses which will doubtless be more and more extended and various, as the art progresses. An example of this was presented in a chimney-piece of statuary porcelain by Messrs. Minton, an extremely advantageous application of the material, not being liable to stains from smoke, or other causes, to which marble is subject. There were also porcelain panels, plateaux, and slabs for the coverings of fire-places, tops of consoles, toilet and chess tables, panels of doors, and window shutters. We observed panels executed by order of Prince Albert for Osborne House; furniture panels and toilet table, with porcelain slab, and porcelain panels in the door and drawers, painted with wreaths of japonica on a rustic trellis, for the Duchess of Sutherland.

A large variety of slabs for wash-stands and tables of every description were exhibited, exhibiting the admirable qualities of this durable material, which is capable of any style of decoration, easily kept clean, and in no ways affected either by the action of soap or acids.

In Pugin's mediæval court were exhibited specimens of porcelain tiles, slabs, and other objects illustrative of the variety of purposes to which this material may be applied, and the variety of ornamentation of which it is susceptible.

In the basement were exhibited by Minton and Co.,

two of the largest terra-cotta vases ever made in this country in plastic material; they were modelled by the Baron Marochetti. There were also two enormous garden pots in stoneware, with medallions in statuary porcelain, after the classic Thorwaldson, the first sculptor of his day, representing the Four Seasons, and the four stages of human life. These attracted great attention.

Specimens of encaustic Venetian, and other ornamental tiles for flooring, were also exhibited. This branch of earthenware manufacture has recently acquired great importance; a large quantity is annually exported. The palace of the Sultan at Constantinople is paved with these porcelain tiles, as are also the House of Lords, Osborne House, and St. George's Hall, Liverpool; and they are getting into general use in churches, private houses, and conservatories, being equally durable as marble, less liable to stains, and capable of being decorated.

The largest piece of pottery ever produced in a single piece, was a figure of Galatea, seven feet high. We understand that attempts are being made, and with likelihood of success, to execute it in statuary porcelain.

Before we conclude our observations on the subject of "Pottery," we will take a glance at the estimated value of this branch of our manufactures, and see to what an extent the simple material of "clay" is rendered productive by the addition of human ingenuity and labour. At the potteries alone the value of the earthenware annually produced is about £1,700,000; and that of the manufactures of Worcester, Derby, and other parts of the country, about £750,000; making a total annual value of £2,450,000.

We shall now close our remarks on this beautiful and important branch of artistic manufacture, and in a fresh chapter, renew our acquaintance with our agreeable French correspondent.

## CHAPTER XXV.

SECOND LETTER OF M. J. LEMOINNE: INCREASING TIDE OF VISITORS—ELECTRIC TELEGRAPH—THE TWO SOSIAS, OR THE TRUE AND THE FALSE KOH-I-NOOR—THE GREAT MASS OF COAL, THE REAL DIAMOND—ENGLISH JEWELLERY—FRENCH SILKS—SEVRES AND THE GOBELINS—RUSSIAN DISPLAY—THE ZOLLVEREIN—A HINT TO TAILORS. THIRD LETTER: FRENCH COMPLACENCY—PARISIAN BELLES—ENGLISH MACHINERY—ENGLISH INDUSTRY AND FRENCH TASTE—FRENCH FREEDOM AND ENGLISH ORDER—AMERICA—PRODUCTIONS IN INDIA—RUBBER AND CAOUCHOUC—FASHIONS—CARLAGES—GO A-HEAD—APOSTROPHE TO THE FAR WEST.

LET us continue our ramble among the curiosities of the Exhibition. We go to the Crystal Palace on a common day, Monday, for example, at ten o'clock, when you will see the arrivals of the country folk and the schools. Four-horse coaches, such as were used before the establishment of railways, carrying four inside and about twenty outside passengers, are again brought into requisition for this occasion. From these elevated vehicles descend multitudes of females in very gay toilettes. Being safely landed, they leisurely arrange their dresses, and readjust that prodigious development which betrays the use of "crinoline." It is much to be regretted that, in this instance, the efforts of art should not be better directed than in spoiling nature. After these arrive large waggons, with a series of seats, bringing the young folks from the boarding or charity schools. I could never have conceived that so many living beings could be packed into so small a space without being suffocated. Out they come, fifty at a time, and when you imagine the vehicle has delivered all its load, out pours a new batch; in sooth, this beats Robert Houdin.

But let us enter. One of the principal advantages of the Crystal Palace is the great number of avenues; there is no necessity of twice treading the same ground. If, by chance, you have left your carriage at one of the extremi-

ties, and you find yourself at another, don't be uneasy, you have at command a rapid and intelligent slave, more prompt than any footman. In passing along the galleries, you may have perceived several little boys twelve or fourteen years old. These are the keys which govern the wires of the electric telegraph. In a moment you may have your carriage called from one end of the building and sent to any entrance you may desire. The telegraph is, moreover, at your service for communication with all the principal railway stations, and thence with all the principal towns in the kingdom. From the Exhibition you may send any messages you please to Dover, Bristol, Edinburgh—everywhere. The tariff is 1s. for twenty words, increasing, of course, in proportion to the distance. A despatch of twenty words sent to York or Edinburgh costs 8s. 6d. In addition to this, you may write your letters at the Exhibition, and in the transept you will find a branch post-office.

We will not now stop at the Koh-i-Noor, which is still offered to the worship of the faithful. A very good imitation of this jewel, in pure crystal, has just been made. The original and the imitation resemble each other as closely as two drops of the clearest water. The two Sosias were not more like. It is said that the Koh-i-Noor is only half its original size, the other half being in its native country, where it has been found in the possession of an honest "proletaire," who made use of it as a flint to strike a light. This anecdote, which was related the other day at a meeting of *savans*, appears to me full of philosophy. I am no less interested by a drawing which represents coalheavers contemplating the huge block of coal which decorates one of the entrances to the Exhibition, and exclaiming, "This is the real diamond!" It is, in truth, the real diamond of England; and, after all, it seems that the other itself is but a species of coal. Never mind, however, all the philosophy in the world will not prevent the diamond being the loadstone of the fair sex. Wherever the ladies obstruct the circulation, and crowd one on the

other, you may be sure there are jewels exhibited. It is the hardest service of the poor policeman, who dares not behave rudely to the fairer half of the creation, and who, from time to time, exclaims, in a voice somewhat severe, sometimes in despondency, "Pass on, ladies—pass on."

I have told you that wherever there were jewels you would be sure to find a policeman; he is the body-guard of the diamonds and pearls. There is one stationed near the blue diamond, for there is a blue diamond, as there must be, somewhere, a white blackbird. This curiosity forms part of the collection of Mr. Hope, and has no marketable value, being unique. M. Bapst, of Paris, has also a phenomenon of this kind, the black diamond. Mr. Hope shows, also, as an amateur, the largest known pearl in the world, which is in shape like a small pear.

In valuables of this kind the Indian exhibition is unrivalled. It contains the Durria-i-Noor, or Sea of Light, a large diamond, estimated at £320,000; a girdle of superb emeralds, and necklaces of two hundred fine pearls, surpassing all that have heretofore been seen in Europe; a costume of an Indian prince, with two epaulettes in fine pearls; thrones and palanquins in ivory; saddles, mounted with diamonds, rubies, and emeralds; and sandals ornamented with precious stones. There are also some *chefs-d'œuvre* of human industry, a collection of shawls, scarfs, and carpets of incomparable richness and beauty. Whole days may be spent in inspecting this division. It is a dangerous place for the rich—they may ruin themselves there. We should walk through it with the consciousness of an empty purse, and then there would be freedom from temptation. This East is still the country of the Arabian Nights, the region of Aladdin and the Wonderful Lamp.

The English jewellery is very beautiful, although it cannot, I think, be properly said to be English, since it is principally the production of foreign workmen. The great superiority in this division of English manufacture is found in the plate, and that description of ornaments

which consists in silver vases and statuettes. These latter are, in England, peculiarly national. *Testimonials* are much in vogue here. They are given as racing and hunting cups, for speeches in parliament, the construction of a railway, or the building of a bridge. They are family furniture, the ornaments of the sideboard and the table; they are a species of art and manufacture developed by the taste for horses, and the habit of horse exercise, hunting, and what is called *sport*.

It is in works of taste that France excels, and in this category may be classed the silks and lace. The Lyons manufacturers have made a collective exhibition; they have glass cases containing the choicest articles, and which are thus, of their kind, somewhat like the Tribune of Florence, or the "Salon Carre" in the Louvre, a collection of *chefs-d'œuvre*. This comparison is induced by the magnificence of the design and of the colours; they are real pictures; and there are some silks in imitation of Chinese, which may be compared to beautiful landscapes.

But here are Sèvres and the Gobelins! Here we are incontestably masters. This division is a little kingdom, of which no nation can dispute with us the sovereignty. Crowds of foreigners congregate here to admire and purchase our productions, and almost everything here has been long since sold.

Russia also has a sumptuous display. It would be necessary to build a palace expressly for the enormous doors and vast vases in malachite which fill this division. They are a little heavy, but still truly magnificent. Prince Demidoff exhibits pieces of malachite and gold from his mines. But here are again some policemen on guard; there must be some jewels. In fact, Russia exhibits the most beautiful diamond ornaments, very delicately mounted, and a jewel-case in black marble, with bunches of grapes in amethyst, and cherries in coral. In general there is, in this Russian division, a certain air of grandeur and rude luxury—riches, as it were, fresh wrested from nature, and torn from the bowels of the earth.

Let us give our eyes a little repose, by going to see the stuffed animals in the department of the Zollverein; they are among the most amusing and "spirituel" objects of the Exhibition. There is a series of scenes in caricature imitation of life, in which small animals are introduced with a most ludicrous fidelity. There is a rabbit-hunt by weasels; a fox who seduces an innocent little cat; a party of little animals drinking tea; others who are seated at the piano and singing; and several other scenes, in which the perfect imitation prevents them from being caricatures.

I prefer this imitation of animals to that of man, such as may be seen in the English division under the form of a mannikin. This is an Apollo Belvidere in mechanism, for the use of tailors, that may be lengthened or shortened at pleasure. It seems that the anatomy of this movable doll is very curious, and contains about 7,000 pieces. Whilst we are on the subject of tailors, I would direct your attention to the waterproof paletots, to which they have given the name of *piuma*, and which are so light, that they may be put in a small case, and carried in the pocket. I really think they might be enclosed in a cigar-case. As a contrast to this, go and look at the immense sheet of paper exhibited in the English nave, and which is not less than 2,500 yards long. When we imagine that this endless paper may, perhaps, be filled with the prosaic effusion of some dull writer, we begin to feel some scruples, and find it necessary to allay the apprehensions of our readers, and close this letter.

#### LETTER III.

A Frenchman may, I think, look at the Crystal Palace with pride. In this festival of nations, in this pacific and glorious competition of human industry, France stands pre-eminent in the products of art, taste, and imagination. To her, as to her daughters, is accorded, in all times and in every clime, the palm of grace and elegance. We are told that when the fairies, in the dispensation of beauty, distributed their gifts to the women of the various nations

of the world, they gave to one regularity of feature, to another symmetry of form, to this the lustre of the eye or the luxurious richness of the hair, to that the complexion of the lily and the rose, but that it happened that in this distribution, the fair one of France, or rather the "Parisienne," was overlooked. The other daughters of the earth, to repair the injustice of chance, and to afford consolation to their sister, deprived themselves for her sake of a part of their attributes, and each plucked from her crown or her girdle a flower, wherewith to form for the neglected fair a bouquet. Thus the "Parisienne," instead of one gift, participated in all, and of these varying fragments she formed that inimitable and indefinable whole which bears her name. Like to this, it would seem, is the character of the products of France; the industry of France is now, as ever, that of art. Look at her silks, her carpets, her porcelain, her jewellery; they are the work of the veritable artist, and their taste is always superior to their material. It may aptly be said that France produces the flowers, and England bears the fruits of civilization.

The department where England shines in all her splendour, is that of machinery. It is indicated by its deep and heavy murmur, like the distant roar of the torrent. There the ebullition of the steam-boiler, the cataract of the centrifugal pump, the groan of the press, and the whirl of the spindle, combine in acknowledging the supremacy of science. Fire, air, water, steam, electricity, are all exerting their agency, and may, without much figure of speech, be said to be monsters of nature chained to the triumphal car of the human will, and venting their impotent rage in groans and imprecations. Beware how you approach them in their fury. Extend to them but a finger, they will seize the hand, and powerless in their grasp, you will become a victim to your imprudence. When unenlightened by practical science, as I confess myself to be, we are perhaps more forcibly struck by the mysterious grandeur of this spectacle. Here thousands of threads,

little sticks, and bits of steel, are engaged in incomprehensible warfare, and resemble so many demons under the influence of some occult power. A few delicate hands, the slight finger of a woman or child, can regulate and direct these myriads of movements. Machinery gradually supplies the place of handicraft, and we may venture to foresee an epoch at which man will have no occupation, and may sit beside it, viewing its occupations with folded arms. And one may say with the poet:—"Thou art black but comely, O city of man! Thou hast a soul, the fatal and glorious creation of our hands. Thy thousand intelligent arms leave us to inaction; and man is left with nought to do but to think, and inebriate himself with thinking till death."

There is in the Exhibition one thing which particularly attracted my attention, albeit though modestly placed in a retired position,—a small glass case, containing copies of the Bible in all languages, with this motto, "*Multa terricolis linguæ, cœlestibus una.*" This collection of Bibles forcibly exhibits the ardent propagandism of the English, one of the grandest and finest aspects in which this nation can be viewed. With steam and the Bible, the English traverse the globe.

One of the great results of the Exhibition will be, that all nations will improve by means of mutual example and comparison. If the English give us lessons in industry, they may, on their part, learn from us to assign to art, properly speaking, a higher position. Taste is perfected in proportion as the level of equality ascends; inferior products are no longer in demand, superfluities have become necessities, and the beautiful is as requisite as the good. I have always thought, that if the English are not real artists, the reason is to be found in their indisposition to lose their time. Works of imagination are the offspring of repose and leisure. The poetic spirit is naturally free and spontaneous, and will not endure coercion. There are some people who seek all means of killing time. The English, on the contrary, seek all

means of saving it. It is sometimes fatiguing. You must be always on the alert; even the double knock of the postman, which warns you from the other end of the street not to keep him waiting, at last irritates you. This is a country in which it is impossible to be otherwise than punctual. And then everything in it is so well regulated. After observing that people walking in the same direction keep the same side of the footpath,—after observing the policeman, so well dressed, and so perfectly buttoned, walking before houses which resemble each other exactly, one feels occasionally the imperious necessity of irregularity. \* \* \*

Let us turn to America; it is there we shall find works of art! The Americans have invented, for instance, a piano which plays violin; 'tis original, and economical to boot—it saves one man's time; it is one artist the less in the republic, and Plato was opposed to having any. The anticipations of the Americans were more "grandiose" than their display. They complained that they had not had sufficient space assigned to them; a concession was made of as much as they desired, and it was comparatively empty. To conceal the nakedness of their walls, they sent quantities of india-rubber. They exhibited gigantic boots in caouchouc—really seven-league boots—fitting emblems of Jonathan, who, when he walks a step, necessarily makes the stride of a giant. They were seized with a mania, too, for exhibiting ladies' bonnets! 'Tis true, gentle reader; yes, actually, fashions from America! Now, what the "fashions" of England are to "the modes" of France, the "just the thing" of America is to the fashions of England. Carriages form another curious specimen of American exhibition. There is one so light, it may be moved with the finger; you may imagine it to be made of paper, and the wheels have not the breadth of a quarter of an inch. It reminds me of the bailiff of Fœrrette, whose legs were so thin, that Talleyrand called him the most courageous man in the world for venturing to stand. With this break-neck

affair, the American traverses space like an arrow. It is not idly he takes for device "Go ahead!" He is ever going, and he will go further still. A model is exhibited in this division of the large steamboats which descend the rivers of the New World, carrying whole houses, in which you may hire apartments! \* \* \*

Oh, America! America! with thy "*far west*,"—thy prairies without limit,—thy forests, compared with which ours are but as clusters of trees,—thy rivers, near which ours would diminish to brooks,—thy lakes, vast as our seas,—thy cataracts and abysses—America! with thy growing industry, with thy indomitable spirit of enterprise, and the superb and insolent daring of thy children—oh! there is in thee, in thy new race, and thine adolescence of nature, something which attracts as the sun, as the future and the mysterious! From the over-populated shores of the Old World, what thousands of desires are directed to thee, thou land boundless and free! I picture thee, America, opening thine arms to the hungry, the outcast, the hopeless, and the wretched of all nations, and exclaiming—Come ye! Come ye! I have space for ye,—I have land and sea, woods and rivers! I have iron and lead! I have work, I have bread, I have air, and ye may breathe! I have gold, and ye may be enriched! Cast off your shoes, shake off the dust of the Old World; come and refresh yourselves in the living waters of nature! "*Ad nos, ad salutarem undam, venite, populi.*"——

Such are the remarks of our lively Gallic neighbour; strongly tinctured with nationality, but not the less valuable on that account; indeed rather more so, for what an interesting volume might have been formed of the various aspects under which the Crystal Palace and its contents were viewed by individuals of the countries that contributed to its treasures, could their impressions, as they wandered through its different departments, have been preserved by any process of mental daguerreotype, in all their genuineness and originality! In what opposite lights should we find the same objects regarded by

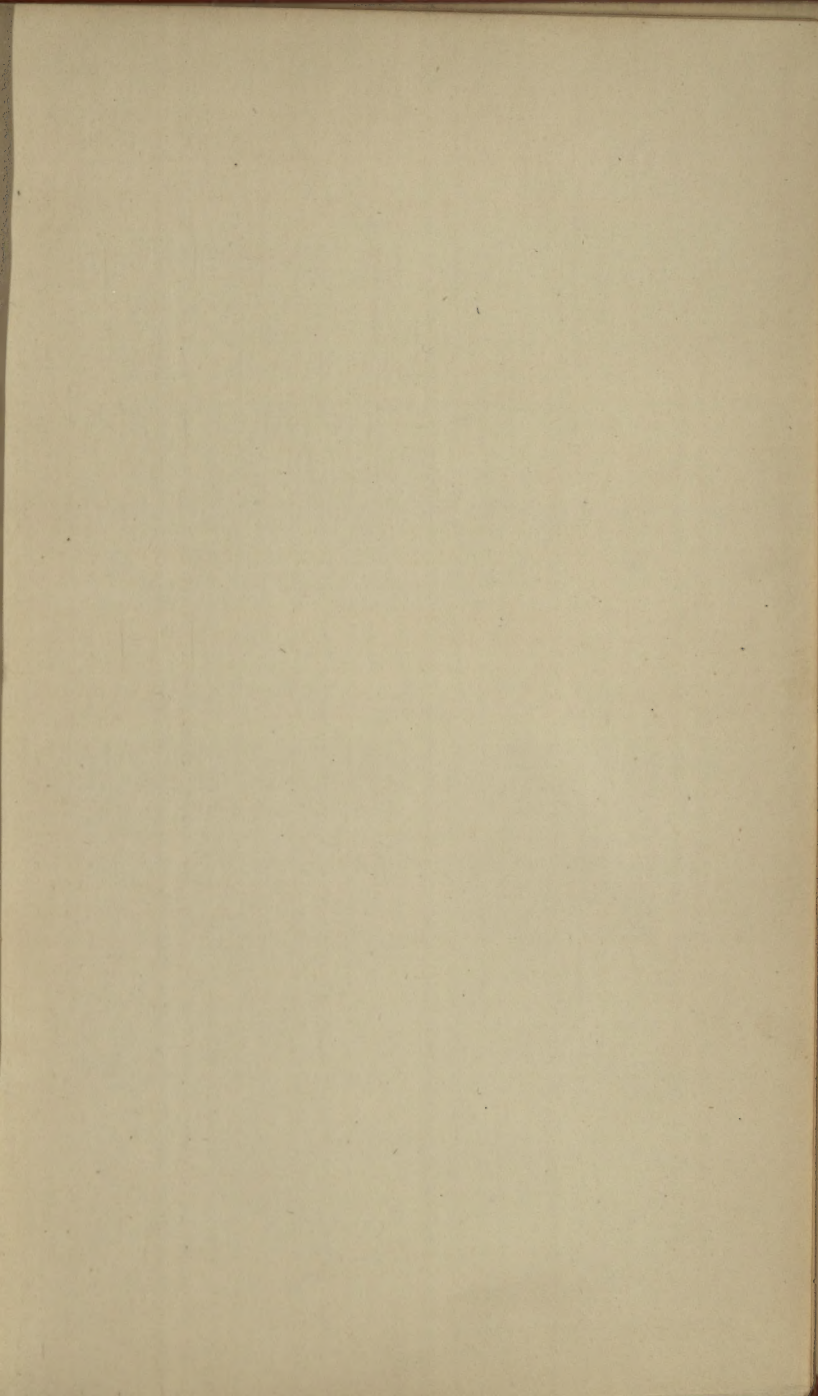
inhabitants of opposite latitudes ! Those who pant under the equator would cast an eye of indifference upon the furs of Russia and North America, however they might admire the "webs of woven air" produced by the Arachne-like fingers of Hindoo women ; nor can we imagine the gallant Captain Ommaney, the Arctic voyager, and his Esquimaux attendant, envying the silken robes of the Orientals, glittering with gold and silver, though we may allow the possibility of their fixing their attention on the yarns and the woollens, the doe-skins and gutta perchas, all the impervious and impermeable articles, in short, that bid defiance to St. Swithin and Cape Horn. Certainly,

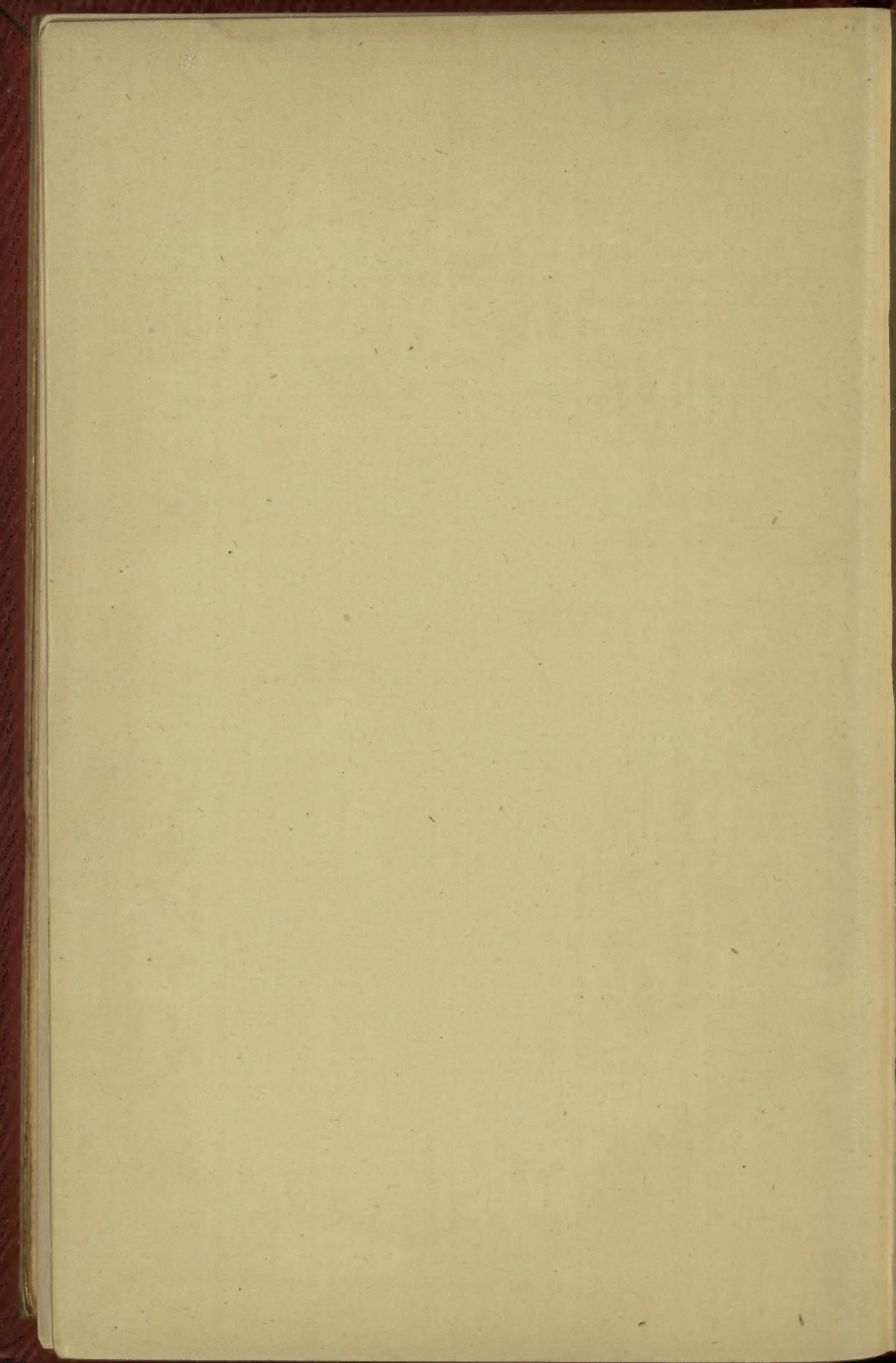
"The turbar'd Turk, with his alcoran,  
And the stately Don, with his whiskers on,"

would view very differently the same things ; the Roman from the banks of the Tiber, the Croat from those of the Drave, the Hindoo from those of the Ganges, the Fleming from Brabant, the Walloon from Luxembourg and Hainault, the Prussian from Westphalia and the Rhenish provinces, the Swiss from his snow-capped mountains, the Austrian from a hundred regions, the hydra-headed Russians, the Swedes, the Danes, the bearded Poles, the smug Chinese, our brother Jonathan ;—all, in short, of the vast family of the human race that sent their representatives to us at the call of peace and science, and brotherly love, must have seen the objects around them according to their own national tastes, habits, and associations. Then, again, in those national peculiarities how many individual peculiarities must also exist ! What two persons ever think exactly alike, or are equally interested by any one object whatsoever ! The sculptor gazes with delight upon the "storied urn, or animated bust," whilst he scarcely glances at the ponderous iron masses that represent the wonders of machinery ; and the engineer turns away from the breathing marble, to contemplate utility and strength in a rougher material, and luxuriates in images of power and steam.

The philosopher exclaims, with Diogenes, "How many things are here that I do not want!"—the poor man. "how many things that I wish I could have!"—the rich one, "how many things that I have already! how many more that I will have!" The military man handles the blades of Toledo, the sabres of Damascus, the Highland dirk and claymore, the guns, pistols, and rifles—single and double barrellled, self-priming, self-loading, revolving. The lover of peace turns to the pruning-hooks, the ploughs, the spades, the hoes, and the garden-rollers. The philanthropist looks round for suggestions that may benefit the human race; the missionary for the means of evangelizing it, casting a longing eye towards the Holy Bible in its hundred and fifty different languages. Those who "go down to the sea in ships," examine the models of vessels, and life-boats, light-houses, harbours, and breakwaters—but the ladies are all unanimous in their raptures with the treasures of dress and decoration expressly framed for the heightening of their attractions, and consequent extension of the empire of their charms.

What a variety of thoughts, sentiments, comparisons, and calculations, must have passed through the minds of the motley crowd that daily congregated under that crystal canopy! numerous as the motes in the sun-beam, rapid as the movements of the gnat-fly's wings—which wings, be it known to you, gentle reader, have been ingeniously ascertained to flap at the rate of fifteen thousand times per second. The Crystal Palace, with all its wonders, could never have produced a wonder like that little insect, even had it stood for a million of years







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